

## Scientific Programme

### Wednesday, 14 September 2016

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<b>08:30 - 10:00</b>	Teaching Courses, Hall C <b>Teaching Course 1 Disease modifying treatment</b> <b>Chairs</b> R.J. Fox (Cleveland, United States) L. Kappos (Basel, Switzerland)
<b>08:30 - 09:00</b>	<b>New MS treatments and updates on established treatments</b> R.J. Fox (Cleveland, United States)
<b>09:00 - 09:30</b>	<b>Assessing and mitigating risks: the right treatment for the right patient</b> S. Vukusic (Lyon, France)
<b>09:30 - 10:00</b>	<b>Defining what is working: choosing a therapeutic strategy</b> L. Kappos (Basel, Switzerland)
<b>08:30 - 10:00</b>	Teaching Courses, Hall D <b>Teaching Course 2 MS during pregnancy and post-partum</b> <b>Chairs</b> K. Hellwig (Bochum, Germany) A.M. Langer-Gould (Pasadena, United States)
<b>08:30 - 09:00</b>	<b>Family planning with MS general consideration/assisted reproductive techniques</b> M.K. Houtchens (Brookline, United States)
<b>09:00 - 09:30</b>	<b>Pregnancy management: medications and lactation</b> K. Hellwig (Bochum, Germany)
<b>09:30 - 10:00</b>	<b>MS and oral contraceptives: the effect on susceptibility and prognosis</b> A.M. Langer-Gould (Pasadena, United States)
<b>08:30 - 10:00</b>	Teaching Courses, Hall E <b>Teaching Course 3 Advanced MS genetics and immunology</b> <b>Chairs</b> R. Liblau (Toulouse, France) F. Zipp (Mainz, Germany)
<b>08:30 - 09:00</b>	<b>Functional genetics in MS</b> L. Fugger (Oxford, United Kingdom)

## Scientific Programme

- 09:00 - 09:30**                    **Immunology of MS: how the pathogenic adaptive immune response develops**  
R. Liblau (Toulouse, France)
- 09:30 - 10:00**                    **Immunology of MS: innate and adaptive immune events within the CNS**  
F. Zipp (Mainz, Germany)
- 08:30 - 10:00**                    Teaching Courses, Hall F  
**Teaching Course 4 MS brain health**  
**Chairs**  
G. Giovannoni (London, United Kingdom)  
R.A. Marrie (Winnipeg, Canada)
- 08:30 - 09:00**                    **What is brain health?**  
G. Giovannoni (London, United Kingdom)
- 09:00 - 09:30**                    **Comorbidities in MS**  
R.A. Marrie (Winnipeg, Canada)
- 09:30 - 10:00**                    **Lifestyle modification in MS**  
J. Saxton (Newcastle upon Tyne, United Kingdom)
- 08:30 - 10:00**                    Teaching Courses, Hall G  
**Teaching Course 5 Examination of blood and CSF in clinical practise**  
**Chairs**  
F. Sellebjerg (Copenhagen, Denmark)  
M. Comabella (Barcelona, Spain)
- 08:30 - 09:00**                    **Biomarkers in blood**  
F. Sellebjerg (Copenhagen, Denmark)
- 09:00 - 09:30**                    **Current biomarkers in cerebrospinal fluid**  
M. Comabella (Barcelona, Spain)
- 09:30 - 10:00**                    **Emerging biomarkers**  
C. Teunissen (Amsterdam, Netherlands)
- 10:30 - 12:00**                    Teaching Courses, Hall C  
**Teaching Course 6 Controversy in management**  
**Chairs**  
A.E. Miller (New York, United States)  
X. Montalban (Barcelona, Spain)

## Scientific Programme

**10:30 - 11:00**

**Case 1 - Relapsing MS**

A.E. Miller (New York, United States)

**11:00 - 11:30**

**Case 2 - Progressive MS**

X. Montalban (Barcelona, Spain)

**11:30 - 12:00**

**Neuromyelitis optica spectrum disorder (NMOSD)**

D.M. Wingerchuk (Scottsdale, United States)

**10:30 - 12:00**

Teaching Courses, Hall D

**Teaching Course 7 Symptomatic therapy**

**Chairs**

T. Berger (Innsbruck, Austria)

A. Feinstein (Toronto, Canada)

**10:30 - 11:00**

**Lower urinary tract dysfunction in Multiple sclerosis: pitfalls and challenges**

M. Pakzad (London, United Kingdom)

**11:00 - 11:30**

**Treatment of spasticity and walking impairment**

T. Berger (Innsbruck, Austria)

**11:30 - 12:00**

**The neuropsychiatry of MS**

A. Feinstein (Toronto, Canada)

**10:30 - 12:00**

Teaching Courses, Hall E

**Teaching Course 8 MRI as predictor of treatment response**

**Chairs**

C. Gasperini (Rome, Italy)

M. Tintoré (Barcelona, Spain)

**10:30 - 11:00**

**Predictive model of treatment response in MS**

M.P. Sormani (Genoa, Italy)

**11:00 - 11:30**

**Predicting treatment response**

M. Tintoré (Barcelona, Spain)

**11:30 - 12:00**

**MRI as predictor of treatment response**

C. Gasperini (Rome, Italy)

## Scientific Programme

<b>10:30 - 12:00</b>	Teaching Courses, Hall F <b>Teaching Course 10 Myelin regeneration and neuroprotection</b>  <b>Chairs</b> C. Lubetzki (Paris, France) B. Stankoff (Paris, France)
<b>10:30 - 11:00</b>	<b>Models of myelination and remyelination to identify potential therapeutic cues</b> C. Lubetzki (Paris, France)
<b>11:00 - 11:30</b>	<b>In vivo analysis of neuronal damage</b> M. Kerschensteiner (Munich, Germany)
<b>11:30 - 12:00</b>	<b>Molecular imaging to quantify tissue damage and repair</b> B. Stankoff (Paris, France)
<b>10:30 - 12:00</b>	Teaching Courses, Hall G <b>Teaching Course 9 Cognition</b>  <b>Chairs</b> M.P. Amato (Florence, Italy) J. DeLuca (New Orange, United States)
<b>10:30 - 11:00</b>	<b>Epidemiology of cognitive impairment in MS: an update</b> M.P. Amato (Florence, Italy)
<b>11:00 - 11:30</b>	<b>Assessment: Pros and cons of available tools</b> D. Langdon (Egham, United Kingdom)
<b>11:30 - 12:00</b>	<b>Current approaches to management</b> J. DeLuca (New Orange, United States)
<b>10:30 - 12:00</b>	Teaching Courses, Moorfields Eye Hospital <b>Teaching Course 16 OCT in clinical practise: a hands on teaching course</b>  <b>Chairs</b> A. Petzold (London, United Kingdom)
<b>10:30 - 12:00</b>	<b>OCT in clinical practise: a hands on teaching course</b> A. Petzold (London, United Kingdom)

## Scientific Programme

<b>12:30 - 13:30</b>	Satellite Symposia, Hall B <b>European Charcot Foundation Role of B-Cells in MS Pathogenesis Symposium</b> <b>Chairs</b> G. Comi (Milan, Italy)
<b>12:30 - 12:50</b>	<b>Why antibody therapy in MS</b> H.-P. Hartung (Düsseldorf, Germany)
<b>12:50 - 13:10</b>	<b>Update of the role of b-cells follicles in MS</b> R. Reynolds (London, United Kingdom)
<b>13:10 - 13:30</b>	<b>Anti b-cells therapy in MS and related disorders</b> G. Comi (Milan, Italy)
<b>12:30 - 14:00</b>	Teaching Courses, Hall C <b>Teaching Course 11 Differential diagnoses</b> <b>Chairs</b> S. Fredrikson (Stockholm, Sweden) A. Siva (Istanbul, Turkey)
<b>12:30 - 13:00</b>	<b>Diagnostic and differential diagnostic aspects in MS</b> S. Fredrikson (Stockholm, Sweden)
<b>13:00 - 13:30</b>	<b>Multiple Sclerosis Differential diagnoses MRI - diagnostic possibilities and pitfalls</b> A. Siva (Istanbul, Turkey)
<b>13:30 - 14:00</b>	<b>Blood and CSF Biomarkers in the Diagnostic Process</b> F. Sellebjerg (Copenhagen, Denmark)
<b>12:30 - 14:00</b>	Teaching Courses, Hall D <b>Teaching Course 12 Neuromyelitis optica spectrum disorders</b> <b>Chairs</b> K. Fujihara (Sendai, Japan) D.M. Wingerchuk (Scottsdale, United States)
<b>12:30 - 13:00</b>	<b>Benefits and challenges of the new diagnostic criteria (2015)</b> D.M. Wingerchuk (Scottsdale, United States)
<b>13:00 - 13:30</b>	<b>Pathomechanisms of AQP4-IgG-, MOG-IgG- and seronegative diseases</b> K. Fujihara (Sendai, Japan)
<b>13:30 - 14:00</b>	<b>Management of typical, gray-zone and pregnant patients</b> A. Jacob (Liverpool, United Kingdom)

## Scientific Programme

<b>12:30 - 14:00</b>	Teaching Courses, Hall E <b>Teaching Course 13 Improving the differential diagnosis of MS using MRI</b>  <b>Chairs</b> J. Palace (Oxford, United Kingdom) F. Barkhof (Amsterdam, Netherlands)
<b>12:30 - 13:00</b>	<b>Aging and vascular diseases</b> F. Barkhof (Amsterdam, Netherlands)
<b>13:00 - 13:30</b>	<b>Neuromyelitis spectrum disorders</b> J. Palace (Oxford, United Kingdom)
<b>13:30 - 14:00</b>	<b>MS mimics</b> A. Rovira (Barcelona, Spain)
<b>12:30 - 14:00</b>	Teaching Courses, Hall F <b>Teaching Course 14 Patient empowerment and coping</b>  <b>Chairs</b> A. Solari (Milan, Italy) C. Heesen (Hamburg, Germany)
<b>12:30 - 13:00</b>	<b>Self-management interventions</b> R. Moss Morris (London, United Kingdom)
<b>13:00 - 13:30</b>	<b>Evidence-based patient information</b> C. Heesen (Hamburg, Germany)
<b>13:30 - 14:00</b>	<b>Coping with severe MS</b> A. Solari (Milan, Italy)
<b>12:30 - 14:00</b>	Teaching Courses, Hall G <b>Teaching Course 15 Paediatric MS</b>  <b>Chairs</b> B. Banwell (Philadelphia, United States) C. Hemingway (London, United Kingdom)
<b>12:30 - 13:00</b>	<b>Diagnosis of MS and related disorders</b> C. Hemingway (London, United Kingdom)
<b>13:00 - 13:30</b>	<b>MRI Features of MS in Children</b> B. Banwell (Philadelphia, United States)
<b>13:30 - 14:00</b>	<b>Genetic and environmental risk factors for pediatric MS</b> E. Waubant (San Francisco, United States)

## Scientific Programme

<b>12:30 - 14:00</b>	Teaching Courses, Moorfields Eye Hospital <b>Teaching Course 17 OCT in clinical practise: a hands on teaching course</b>  <b>Chairs</b> A. Petzold (London, United Kingdom)
<b>12:30 - 14:00</b>	<b>OCT in clinical practise: a hands on teaching course</b> A. Petzold (London, United Kingdom)
<b>14:00 - 15:30</b>	Parallel Sessions, Hall B <b>Parallel Session 1 Challenges for care and research in MS outside Europe and North America</b>  <b>Chairs</b> X. Montalban (Barcelona, Spain) D. Miller (London, United Kingdom)
<b>14:00 - 14:10</b>	<b>Asia</b> T. Saida (Kyoto, Japan)
<b>14:10 - 14:20</b>	<b>Challenges for multiple sclerosis care and research in the Middle East</b> B. Yamout (Beirut, Lebanon)
<b>14:20 - 14:30</b>	<b>Challenges for care and research in MS in Iran</b> M.A.A. Sahraian (Tehran, Iran, Islamic Republic of)
<b>14:30 - 14:40</b>	<b>Organization of MS care in Russia</b> A. Boyko (Moscow, Russian Federation)
<b>14:40 - 14:50</b>	<b>Latin America</b> J. Correale (Buenos Aires, Argentina)
<b>14:50 - 15:00</b>	<b>Challenges for care and research in MS outside Europe and North America. Brazil</b> M. Lana-Peixoto (Belo Horizonte, Brazil)
<b>15:00 - 15:10</b>	<b>Challenges for care and research in MS outside Europe and North America: Australia &amp; New Zealand</b> W.M. Carroll (Nedlands, Australia)
<b>15:10 - 15:20</b>	<b>Incidence and prevalence of neuromyelitis optica in Australia and New Zealand: a population-based, clinical survey</b> S.A. Broadley (Griffith University, Australia)

## Scientific Programme

	Young Scientific Investigators' Sessions, Hall C
<b>14:00 - 15:30</b>	<b>Young Scientific Investigators' Session 1</b>  <b>Chairs</b> T. Derfuss (Basel, Switzerland) L. Leocani (Milan, Italy)
<b>14:00 - 14:15</b>	<b>The role of GPR65 and GALC in multiple sclerosis</b> W. Liao (Cambridge, United Kingdom)
<b>14:15 - 14:30</b>	<b>Comparison of MRI criteria for the diagnosis of multiple sclerosis: role of cortical lesions</b> P. Preziosa (Milan, Italy)
<b>14:30 - 14:45</b>	<b>A network approach to suggest a role of variation in complement pathway genes in retinal atrophy in multiple sclerosis patients</b> K.C. Fitzgerald (Baltimore, United States)
<b>14:45 - 15:00</b>	<b>Income and cognitive impairment among multiple sclerosis patients</b> A. Kavaliunas (Stockholm, Sweden)
<b>15:00 - 15:15</b>	<b>Fingolimod therapy modulates B cell functions: reduces CXCR4-mediated migration and increases B cell -mediated anti-inflammatory cytokine profile</b> S. Blumenfeld (Haifa, Israel)
<b>15:15 - 15:30</b>	<b>Spinal cord volume loss predicts disease activity and disability over time in multiple sclerosis</b> C. Tsagkas (Basel, Switzerland)
	Nurses Sessions, Hall D
<b>14:15 - 15:30</b>	<b>Nurses' Session 1 MS in childhood and senescence and the value of multidisciplinary teamwork</b>  <b>Chairs</b> A.K. Krakau Hansen (Copenhagen, Denmark) K. Vernon (Salford, United Kingdom)
<b>14:15 - 14:40</b>	<b>Children of parents with multiple sclerosis attain higher grades in basic school</b> J.Y. Moberg (Copenhagen, Denmark)
<b>14:40 - 15:05</b>	<b>The elderly person with multiple sclerosis: clinical implications for the increasing life-span</b> M. Buhse (Stony Brook New York, United States)
<b>15:05 - 15:30</b>	<b>The importance of a multi-disciplinary perspective and patient activation programmes in MS management</b> P.L. Eelen (Melsbroek, Belgium) S. Lykke Andersen (Glostrup, Denmark)

## Scientific Programme

- Hot Topic Sessions, Hall A
- 16:00 - 16:45** **Hot Topic 1 The initial treatment of early active relapsing remitting MS should be with a potent induction therapy rather than standard immunomodulation then escalation**
- Chairs**  
L. Kappos (Basel, Switzerland)  
A. Compston (Cambridge, United Kingdom)
- 16:00 - 16:15** **The initial treatment of early active relapsing remitting MS should be with a potent induction therapy rather standard immunomodulation then escalation**
- G. Edan (Rennes, France)
- 16:15 - 16:30** **Against potent induction early**
- E. Waubant (San Francisco, United States)
- 16:30 - 16:40** **Cladribine tablets in the ORACLE-MS study open-label maintenance period: analysis of efficacy in patients after conversion to clinically definite multiple sclerosis (CDMS)**
- G. Comi (Milan, Italy)
- 16:40 - 16:45** **Summary**
- L. Kappos (Basel, Switzerland)
- Young Scientific Investigators' Sessions, Hall C
- 16:00 - 17:15** **Young Scientific Investigators' Session 2**
- Chairs**  
F. Fazekas (Graz, Austria)  
J. Sastre-Garriga (Barcelona, Spain)
- 16:00 - 16:15** **DICAM: a new player in multiple sclerosis pathogenesis**
- S. Ghannam (Montreal, Canada)
- 16:15 - 16:30** **Risks of psychiatric disorders in children and young adults with demyelinating diseases of the central nervous system: a national record-linkage study**
- J. Pakpoor (Oxford, United Kingdom)
- 16:30 - 16:45** **The role of gut immunity in multiple sclerosis patients**
- G. Dalla Costa (Milan, Italy)
- 16:45 - 17:00** **Dynamic assessment of macrophages infiltration and microstructural damage within MS lesions**
- A. Kerbrat (Rennes, France)
- 17:00 - 17:15** **Detection of spinal cord lesions in clinically isolated syndrome patients: comparison of sagittal short T1 inversion recovery (STIR), T2-weighted, proton density and combined T2-STIR sequences**
- A. Salerno (Barcelona, Spain)

## Scientific Programme

<b>16:00 - 17:15</b>	<p>Nurses Sessions, Hall D</p> <p><b>Nurses' Session 2 MS Nurses as scientific investigators: lessons from around the globe</b></p> <p><b>Chairs</b> B. Porter (London, United Kingdom) D. Thomas (Hereford, United Kingdom)</p>
<b>16:00 - 16:15</b>	<p><b>The role of Vitamin D in utero</b> L. Ruscoe (Newcastle Road, United Kingdom)</p>
<b>16:15 - 16:35</b>	<p><b>The needs of children living with multiple sclerosis</b> N. Conway (United Kingdom)</p>
<b>16:35 - 16:55</b>	<p><b>Use of social media to enhance the patient experience</b> M. Allan (Melbourne, Australia)</p>
<b>16:55 - 17:15</b>	<p><b>Changing practice through the ECTRIMS Nurse Fellowship</b> M.A. Robles Sanchez (Barcelona, Spain)</p>
<b>17:30 - 18:30</b>	<p>Satellite Symposia, Hall B</p> <p><b>Satellite Symposium - Changing perspectives on the role of the immune system in multiple sclerosis: pathology, differentiation, and targeted therapies</b></p> <p>Supported by Vindico with an independent educational grant from Roche</p> <p><b>Chairs</b> H.-P. Hartung (Düsseldorf, Germany)</p>
<b>17:30 - 17:35</b>	<p><b>Introduction and Pretest</b> H.-P. Hartung (Düsseldorf, Germany)</p>
<b>17:35 - 17:50</b>	<p><b>Differentiating disease and the role of the immune system</b> G. Comi (Milan, Italy)</p>
<b>17:50 - 18:05</b>	<p><b>Dissecting the data on new and emerging high-efficacy agents for RRMS and PPMS</b> S. Hauser (San Francisco, United States)</p>
<b>18:05 - 18:20</b>	<p><b>Best practices when using selective high-efficacy agents</b> X. Montalban (Barcelona, Spain)</p>
<b>18:20 - 18:25</b>	<p><b>Posttest</b></p>
<b>18:25 - 18:30</b>	<p><b>Question and Answer</b></p>

## Scientific Programme

<b>18:45 - 19:45</b>	Satellite Symposia, Hall A <b>Satellite Symposium - Reimagining the MS treatment journey</b> Supported by Merck
	<b>Chairs</b> D. Bates (Newcastle upon Tyne, United Kingdom) G. Giovannoni (London, United Kingdom)
<b>18:45 - 18:55</b>	<b>Opening and welcome Evolving therapeutic landscape: do we still have unmet needs?</b> D. Bates (Newcastle upon Tyne, United Kingdom) G. Giovannoni (London, United Kingdom)
<b>18:55 - 19:15</b>	<b>Debate: do we still have unmet needs in multiple sclerosis?</b> G. Giovannoni (London, United Kingdom) H. Wiendl (Münster, Germany)
<b>19:15 - 19:25</b>	<b>What are we looking for in a multiple sclerosis therapy?</b> H. Wiendl (Münster, Germany)
<b>19:25 - 19:40</b>	<b>Current and future therapies: are we getting closer to addressing the unmet needs?</b> S. Schippling (Zurich, Switzerland)
<b>19:40 - 19:45</b>	<b>Summary and close</b> D. Bates (Newcastle upon Tyne, United Kingdom) G. Giovannoni (London, United Kingdom)

## Scientific Programme

### Thursday, 15 September 2016

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**07:45 - 08:45**

Satellite Symposia, Hall A

**Satellite Symposium - Optimising MS Care: physician and patient choices**

Supported by Biogen

A case-based exploration of evidence-based decision making in MS, with integrated panel discussion and audience interaction throughout

**Chairs**

D. Bates (Newcastle upon Tyne, United Kingdom)

**07:45 - 08:00**

**Chair's welcome and introduction**

D. Bates (Newcastle upon Tyne, United Kingdom)

**08:00 - 08:15**

**Predictors of prognosis: where are we now?**

D. Horáková (Prague, Czech Republic)

**08:15 - 08:30**

**Early intervention: how can we maximise patient prospects?**

T. Berger (Innsbruck, Austria)

**08:30 - 08:45**

**Treatment optimisation: how do we apply emerging evidence?**

T. Ziemssen (Dresden, Germany)

**Chair's closing remarks**

**09:00 - 10:15**

Plenary Sessions, Hall A

**Plenary Session 1**

**Chairs**

X. Montalban (Barcelona, Spain)

D. Miller (London, United Kingdom)

**09:00 - 09:25**

**Welcome to ECTRIMS 2016**

D. Miller (London, United Kingdom)

X. Montalban (Barcelona, Spain)

**09:25 - 09:30**

**Cultural feature**

**09:30 - 10:15**

**ECTRIMS lecture: "MS diagnosis and personalised treatment"**

X. Montalban (Barcelona, Spain)

## Scientific Programme

	Parallel Sessions, Hall A
<b>10:45 - 12:15</b>	<b>Parallel Session 2 Neuroprotection in MS: focus on acute optic neuritis</b>  <b>Chairs</b> M. Craner (Oxford, United Kingdom) L.J. Balk (Amsterdam, Netherlands)
<b>10:45 - 11:05</b>	<b>Tools for measuring neuroaxonal loss in the visual pathway</b> P. Calabresi (Baltimore, United States)
<b>11:05 - 11:25</b>	<b>Neuroprotection in MS: results of optic neuritis trials</b> R. Kapoor (London, United Kingdom)
<b>11:25 - 11:37</b>	<b>Retinal measurements predict 10-year disability in multiple sclerosis</b> A.M. Rothman (Baltimore, United States)
<b>11:37 - 11:49</b>	<b>Multifocal visual evoked potentials measurements in the acute phase may predict long term visual outcome following optic neuritis</b> G. Pihl-Jensen (Glostrup, Denmark)
<b>11:49 - 12:01</b>	<b>Amiloride does not protect retinal nerve fibre layer thickness following acute optic neuritis; result from a phase II, double blind, randomised controlled trial</b> J.B. McKee (Headington, United Kingdom)
<b>12:01 - 12:13</b>	<b>NEDA 3 in multiple sclerosis preserves from retinal axonal loss</b> M. Pisa (Milan, Italy)
	Parallel Sessions, Hall B
<b>10:45 - 12:15</b>	<b>Parallel Session 3 NMO update</b>  <b>Chairs</b> J. de Seze (Strasbourg, France) D.M. Wingerchuk (Scottsdale, United States)
<b>10:45 - 11:05</b>	<b>New trial designs and treatment approach for NMO</b> K. Fujihara (Sendai, Japan)
<b>11:05 - 11:25</b>	<b>MOG antibodies in inflammatory CNS disease</b> J. Palace (Oxford, United Kingdom)
<b>11:25 - 11:37</b>	<b>Plasma exchange and immunoabsorption for neuromyelitis optica spectrum disorder attacks</b> I. Kleiter (Bochum, Germany)
<b>11:37 - 11:49</b>	<b>Severe neurodegeneration and unique dynamics of aquaporin-4 on astrocytes in the anterior visual pathway of neuromyelitis optica</b> E. Saji (Niigata, Japan)

## Scientific Programme

**11:49 - 12:01** **Characterization of cortical pathology and lesion patterns in patients with multiple sclerosis and neuromyelitis optica with high resolution 7T MRI**

S. Sadaghiani (Tehran, Iran, Islamic Republic of)

**12:01 - 12:13** **Anti-aquaporin-4 antibodies longitudinal titration in NMO patients treated with rituximab: involvement in the pathogenesis of the disease, rituximab impact, and clinical practice**

A. Bertolotto (Orbassano, Italy)

Parallel Sessions, Hall C

**10:45 - 12:15** **Parallel Session 4 The innate immune system in MS**

### Chairs

J. Antel (Montreal, Canada)

R. Liblau (Toulouse, France)

**10:45 - 11:05** **Mechanisms of innate immune system-mediated tissue damage**

K. Akassoglou (San Francisco, United States)

**11:05 - 11:25** **Therapies directed at modulating the innate immune system**

R.J. Fox (Cleveland, United States)

**11:25 - 11:37** **Advanced characterization of intrathecal inflammation and cortical pathology stratify early MS patients**

R. Magliozzi (Verona, Italy)

**11:37 - 11:49** **Persistent cytokine production induced in the cerebral meninges in a rat model of MS gives rise to chronic cortical pathology**

R. Reynolds (London, United Kingdom)

**11:49 - 12:01** **Integrin alpha8 is a novel mediator of T lymphocyte migration across the CNS barriers**

E.M. Gowing (Montreal, Canada)

**12:01 - 12:13** **Microglia activation is dissociated in cortex and white matter: a combined 11C-PBR28 and 7T imaging study**

E. Herranz (Boston, United States)

Parallel Sessions, Hall D

**10:45 - 12:15** **RIMS Parallel Session 1 Multi-Disciplinary Rehabilitation**

### Chairs

A.J. Thompson (London, United Kingdom)

U. Dalgas (Aarhus, Denmark)

**10:45 - 11:05** **Effects on health related quality of life from multidisciplinary rehabilitation in multiple sclerosis: a randomized controlled trial - the Danish MS hospitals rehabilitation study**

F. Boesen (Haslev, Denmark)

## Scientific Programme

- 11:05 - 11:25**      **Rehabilitation strategies for progressive multiple sclerosis: what works, what does not, and what is needed**  
J. Freeman (Plymouth, United Kingdom)
- 11:25 - 11:45**      **Behavioural change interventions to increase physical activity**  
L. Hale (Dunedin, New Zealand)
- 11:45 - 12:00**      **Modifiable psychosocial constructs associated with physical activity participation in people with multiple sclerosis: a systematic review and meta-analysis**  
B. Casey (Limerick, Ireland)
- 12:00 - 12:15**      **Telerehabilitation in multiple sclerosis: results of a randomized, 3-arm, rater blinded, feasibility and efficacy pilot study; gait and balance report**  
G. Pardo (Oklahoma City, United States)
- 13:00 - 14:00**      Satellite Symposia, Hall B  
**Satellite Symposium - Building confidence through long-term experience with fingolimod**  
supported by Novartis  
**Chairs**  
X. Montalban (Barcelona, Spain)  
H.-P. Hartung (Düsseldorf, Germany)
- 13:00 - 13:03**      **Chair's opening and welcome**  
H.-P. Hartung (Düsseldorf, Germany)
- 13:03 - 13:21**      **Building confidence in MS: long-term experience with fingolimod**  
B. Singer (St. Louis, United States)
- 13:21 - 13:39**      **Predictive analysis in MS disease monitoring: from clinical assessment to quantitative outcomes**  
X. Montalban (Barcelona, Spain)
- 13:39 - 13:57**      **Patient management in MS: the importance of acting early and effectively**  
H.-P. Hartung (Düsseldorf, Germany)
- 13:57 - 14:00**      **Closing remarks**  
X. Montalban (Barcelona, Spain)
- 14:15 - 15:45**      Parallel Sessions, Hall A  
**Parallel Session 5 New developments in pathophysiologically-based symptomatic therapy**  
**Chairs**  
A.J. Thompson (London, United Kingdom)  
M. Clanet (Toulouse, France)

## Scientific Programme

- 14:15 - 14:35**                      **Improving mobility in multiple sclerosis**  
D. Centonze (Rome, Italy)
- 14:35 - 14:47**                      **Chasing the driver of fatigue in multiple sclerosis: brain MRI versus CSF**  
V. Biberacher (München, Germany)
- 14:47 - 14:59**                      **Brain imaging of short-term functional plasticity predicts performance improvement with longer-term motor sequence training in multiple sclerosis**  
I. Lipp (Cardiff, United Kingdom)
- 14:59 - 15:11**                      **A randomized, double-blind, parallel group study to compare the safety and efficacy of Arbaclofen Extended Release Tablets to placebo and baclofen for the treatment of spasticity in patients with multiple sclerosis**  
D. Kantor (Parkland, United States)
- 15:11 - 15:23**                      **A randomized trial of dual lead thalamic DBS for the treatment of Multiple Sclerosis tremor: Results from the NIH cohort**  
D. Kantor (Parkland, United States)
- 15:23 - 15:43**                      **Treating MS bladder dysfunction**  
J. Panicker (London, United Kingdom)
- Parallel Sessions, Hall B
- 14:15 - 15:45**                      **Parallel Session 6 New techniques to image neuroprotection and repair**
- Chairs**  
N. De Stefano (Siena, Italy)  
D. Reich (Bethesda, United States)
- 14:15 - 14:35**                      **Is there anything better than atrophy to image neuroprotection?**  
J. Oh (Toronto, Canada)
- 14:35 - 14:55**                      **Is MTR a robust measure of tissue repair?**  
C. Enzinger (Graz, Austria)
- 14:55 - 15:07**                      **Imaging signature of multiple sclerosis phenotypes in grey matter**  
A. Eshaghi (London, United Kingdom)
- 15:07 - 15:19**                      **Physical exercise-related changes in structural connectome architecture in patients with relapsing-remitting multiple sclerosis**  
S.C. Hodecker (Hamburg, Germany)
- 15:19 - 15:31**                      **Lesion accumulation rate is higher in cortex than in white matter and associated with cortical thinning in multiple sclerosis: a longitudinal 7T study**  
T. Granberg (Stockholm, Sweden)

## Scientific Programme

- 15:31 - 15:43** **In vivo translocator protein positron emission tomography imaging detects a heterogeneity of lesion inflammatory activity in multiple sclerosis not evident by MRI**  
G. Datta (London, United Kingdom)
- Parallel Sessions, Hall C
- 14:15 - 15:45** **Parallel Session 7 Mitochondrial dysfunction and energy deficits mediating neurodegeneration in MS**
- Chairs**  
B. Trapp (Cleveland, United States)  
W. Brück (Göttingen, Germany)
- 14:15 - 14:35** **Multiple sclerosis from an energy perspective**  
K. Smith (London, United Kingdom)
- 14:35 - 14:55** **Evidence in MS neuropathology**  
D.J. Mahad (Edinburgh, United Kingdom)
- 14:55 - 15:07** **Transport deficits lead to mitochondrial depletion of the distal collaterals and synapses in a model of chronic neuroinflammation**  
A. Ladwig (Munich, Germany)
- 15:07 - 15:19** **Reduced expression of mitochondrial fumarate hydratase contributes to impaired MSC-mediated neuroprotection in multiple sclerosis**  
P. Sarkar (Bristol, United Kingdom)
- 15:19 - 15:31** **Increased cortical and deep grey matter sodium concentration is associated with physical and cognitive disability in relapse-onset multiple sclerosis**  
W.J. Brownlee (London, United Kingdom)
- 15:31 - 15:43** **Cutaneous sodium storage is a major driver of autoimmune responses in neuroinflammation**  
S. Jörg (Erlangen, Germany)
- Parallel Sessions, Hall D
- 14:15 - 15:45** **RIMS Parallel Session 2 Symptomatic management**
- Chairs**  
P. Hämläinen (Masku, Finland)  
D. Kos (Leuven, Belgium)
- 14:15 - 14:35** **Rehabilitation to treat MS-related fatigue: the TREFAMS research programme**  
V. de Groot (Amsterdam, Netherlands)
- 14:35 - 14:55** **Cognitive rehabilitation in PPMS**  
F. Patti (Catania, Italy)

## Scientific Programme

- 14:55 - 15:10**      **Cognitive improvement and functional connectivity changes after integrative group-based cognitive rehabilitation in multiple sclerosis**  
O. Rilo (Bilbao, Spain)
- 15:10 - 15:25**      **Superior and middle frontal gyrus activity during N-Back correlates with the effect of computer-assisted cognitive rehabilitation**  
P. Iaffaldano (Bari, Italy)
- 15:25 - 15:40**      **A standardized outpatient physical rehabilitation program improves walking in people with multiple sclerosis presenting with different levels of disability: a retrospective study**  
G. Loyola (Barcelona, Spain)
- 15:45 - 17:00**      Poster Sessions, Poster Exhibition  
**Poster Session 1**
- There is less MRI brain lesions and no characteristic MRI brain findings in IIDDs patients with positive AQP4 serology among Malaysians**  
S. Abdullah (Kuala Lumpur, Malaysia)
- Relevance of serum anti-MOG antibodies for diagnosis and characterization of CNS demyelinating disorders**  
S. Mariotto (Verona, Italy)
- Susac syndrome: a differential diagnosis of white matter lesions a Latin American series**  
M. Marrodan (Buenos Aires, Argentina)
- A novel bio-marker for early detection and characterization of multiple sclerosis**  
A. Horowitz (Tel Aviv, Israel)
- Corpus callosum lesions in Susac syndrome may facilitate diagnosis in cases with an incomplete triad: proposed diagnostic criteria for Susac syndrome**  
R. Carruthers (Vancouver, Canada)
- Acute disseminated encephalomyelitis in China, Singapore, and Japan: characterization and comparison with the U.S.A**  
F.J. Mateen (Cambridge, United States)
- Cognitive profile in neuromyelitis optica spectrum disorder**  
B. Altunrende (Istanbul, Turkey)
- Core CSF findings to support the diagnosis of MS: oligoclonal bands or kappa free light chains?**  
A. Emersic (Ljubljana, Slovenia)
- Brain magnetic resonance imaging characteristics of neuromyelitis optica spectrum disorder in a cohort of Latin American patients**  
E.G. Carnero Contentti (Buenos Aires, Argentina)

## Scientific Programme

**Identification and measurement of cervical spinal cord atrophy in neuromyelitis optica spectrum disorders (NMOSD) and correlation with clinical characteristics and cervical spinal cord MRI data**

F. Lersy (Strasbourg, France)

**Characterization of seronegative neuromyelitis optica in 2016**

L. Pandit (Mangalore, India)

**Genotypic influences on surface expression of co-stimulatory receptors suggests a role for B-cell subtypes in the development of multiple sclerosis**

D. He (Cambridge, United Kingdom)

**Is Radiologically isolated syndrome uncommon as thought? Prevalence of radiologically isolated syndrome in a double-center, population-based study**

N. Oztekin (Ankara, Turkey)

**Depression in patients with neuromyelitis optica spectrum disorder**

M. Choi (Seoul, Korea, Republic of)

**Tumefactive multiple sclerosis: diagnostic enigma and therapeutic challenge**

M. Hmoud (Jeddah, Saudi Arabia)

**Clinical course of primary progressive multiple sclerosis: fast and slow progression**

C. Legarda (Ramat-Gan, Israel)

**Malignant multiple sclerosis: prevalence, demographic and clinical prognostic factors identified in Brazilian cohort**

C.C.F. Vasconcelos (Rio de Janeiro, Brazil)

**Atypical myelitis of multiple sclerosis: description of a French cohort**

C. Lambert (Strasbourg, France)

**Is cognitive impairment common in neuromyelitis optica spectrum disorders (NMOSD)?**

A. Orviz-García (Madrid, Spain)

**The diagnostic and prognostic value of MRI for evaluating atypical idiopathic inflammatory demyelinating lesions**

A. Soysal (Istanbul, Turkey)

**Investigating the choroid in neuromyelitis optica spectrum disorder using optical coherence tomography**

J. Bernard (Chicago, United States)

**Cross-modal plasticity among sensory networks in neuromyelitis optica spectrum disorders**

A. d'Ambrosio (Milan, Italy)

**Proposed revised criteria for the diagnosis of CLIPPERS**

G. Taieb (Montpellier, France)

## Scientific Programme

**The incidence of paediatric-onset acquired demyelinating syndromes of the central nervous system in Denmark: a nationwide register-based study**

M.S. Boesen (Copenhagen, Denmark)

**Fingolimod in active pediatric onset multiple sclerosis**

P. Huppke (Göttingen, Germany)

**Different B-cell patterns in the cerebrospinal fluid of patients with pediatric-onset compared with adult-onset multiple sclerosis**

B. Wildemann (Heidelberg, Germany)

**Associations between the gut microbiota and immune markers in paediatric multiple sclerosis and controls**

H. Tremlett (Vancouver, Canada)

**Disease course after CIS in children versus adults: a prospective cohort study**

D.E. van Pelt (Rotterdam, Netherlands)

**Disrupted cognitive development following acute demyelinating syndrome: a longitudinal study**

E. De Somma (Toronto, Canada)

**PARADIGMS baseline characteristics: a randomised, double-blind study of fingolimod in paediatric patients with multiple sclerosis**

T. Chitnis (Boston, United States)

**Health-related quality of life in paediatric onset multiple sclerosis**

H. Bullock (London, United Kingdom)

**Towards an improved classification of relapsing demyelinating syndromes of the central nervous system in children**

Y. Hachohen (London, United Kingdom)

**Interferon beta-1b in treatment-naïve paediatric patients with relapsing-remitting MS: 2-year results from the BETAPAEDIC study**

J. Gärtner (Göttingen, Germany)

**Compensatory recruitment during executive control processing in cognitively preserved patients with paediatric-onset multiple sclerosis**

E. Barlow-Krelina (Toronto, Canada)

**Diet is associated with relapse rate in pediatric multiple sclerosis**

S. Azary (San Francisco, United States)

**Relationship of self-reported mood and fatigue to self-reported cognitive functioning in pediatric-onset multiple sclerosis patients**

C. Till (Toronto, Canada)

**Cortico-thalamic connectivity abnormalities as structural substrate of fatigue in pediatric multiple sclerosis**

E. De Meo (Milan, Italy)

## Scientific Programme

**An EDSS-based definition of secondary progressive multiple sclerosis**

C. Diaz-Cruz (Boston, United States)

**Estimating the long-term effect of drugs in multiple sclerosis**

C. Cordioli (Montichiari, Italy)

**Prognosis in multiple sclerosis: a UK national survey**

I. Galea (Southampton, United Kingdom)

**Excess mortality among MS patients in Denmark has dropped significantly over the last six decades**

N. Koch-Henriksen (Aarhus, Denmark)

**Neuropsychological features can help in predicting disease evolution in benign multiple sclerosis patients: a 12 year study**

L. Razzolini (Florence, Italy)

**Survival and mortality in multiple sclerosis: a 60-year longitudinal population study**

H.M. Lunde (Bergen, Norway)

**Amount and time to maximal recovery from multiple sclerosis relapses declines with age**

B.L. Conway (Rochester, United States)

**Longitudinal follow-up of fatigue in CIS patients: a prospective study**

R.M. van der Vuurst de Vries (Rotterdam, Netherlands)

**Shift work at young age and risk of multiple sclerosis**

S. Gustavsen (Copenhagen, Denmark)

**Socioeconomic status may influence delay to access to second line disease modifying treatments in RRMS patients**

F. Calocer (Caen, France)

**Lifestyle and socio-demographic determinants of mental and physical health-related quality of life in people with multiple sclerosis**

C.H. Marck (Melbourne, Australia)

**Sexual function in multiple sclerosis and associations with demographic, disease and lifestyle characteristics: an international cross-sectional study**

C.H. Marck (Melbourne, Australia)

**Clinical electronic consent for the UK MS Register**

R.M. Middleton (Swansea, United Kingdom)

**Accuracy of onset age and prodromal phase of multiple sclerosis in a nationwide cohort in Sweden: a translational study from administrative data to clinical practice**

A. Manouchehrinia (Stockholm, Sweden)

## Scientific Programme

**Historical but not current vitamin D & sun parameters are associated with a more favourable multiple sclerosis clinical course: data from the Ausimmune Longitudinal Study at 5 years**

B. Taylor (Hobart, Australia)

**Changes in sun & vitamin D behaviours and their relationships with vitamin D during five years of follow-up in Ausimmune Longitudinal Study cohort**

B. Taylor (Hobart, Australia)

**Infection-related health care utilization among people with and without MS**

J.M.A. Wijnands (Vancouver, Canada)

**Multiple sclerosis prevalence and incidence in Tehran, Iran**

S. Eskandarieh (Tehran, Iran, Islamic Republic of)

**The utility of instrumental activities of daily living to predict disability**

A. Salter (St. Louis, United States)

**An adverse lipid profile and increased body mass index significantly predicts clinical course after a first demyelinating event**

I. van der Mei (Hobart, Australia)

**Anti-HHV6 IgG levels are associated with hazard of conversion to clinically definite multiple sclerosis after CIS**

C. Tao (Hobart, Australia)

**Influence of environmental factors on bone mineral density and trabecular bone score in Danish MS patients**

A.G. Olsson (Copenhagen, Denmark)

**Oral contraceptives and MS disease activity in a modern real-world cohort**

R. Bove (Brookline, United States)

**Plasma osteopontin levels and expression of cytokine receptors and regulatory T cells in peripheral blood lymphocytes during pregnancy in neuromyelitis optica spectrum disorder and multiple sclerosis**

Y. Shimizu (Tokyo, Japan)

**Pregnancy protects against long-term disability accrual in relapsing-remitting MS**

V.G. Jokubaitis (Parkville, Australia)

**MS symptom worsening during menstrual period may be associated with disease severity later in life**

K.S. Kavak (Buffalo, United States)

**Pregnancy decision-making and related outcomes among women with MS enrolled in the New York State Multiple Sclerosis Consortium**

C.B. Vaughn (Buffalo, United States)

**Later age of menarche is associated with inflammatory and neurodegenerative changes in female multiple sclerosis patients**

D. Jakimovski (Buffalo, United States)

## Scientific Programme

**Early menarche is associated with increased risk of multiple sclerosis and earlier age at onset of multiple sclerosis in Danish patients**

A.B. Oturai (Copenhagen, Denmark)

**Disease course during pregnancy in patients with highly active multiple sclerosis**

I. Meinl (Munich, Germany)

**Impact of MS symptoms and symptom clusters on quality of life: a cross-sectional study of a large community cohort**

C. Chen (Portland, United States)

**Multi-dimensional assessment of symptom severity in matched NMO and MS patients**

R. Green (New York, United States)

**Systematic assessment and characterization of chronic pain in multiple sclerosis patients**

D. Plantone (Rome, Italy)

**Multiple sclerosis broke my heart**

G. Androdias (Lyon, France)

**Protective personality traits: high openness and low neuroticism are linked to better memory in MS**

V.M. Leavitt (New York, United States)

**Profiling cognitive deficits of patients with relapsing remitting multiple sclerosis (RRMS) in initial and later disease stages**

H. Schreiber (Ulm, Germany)

**Balancing the demands of two tasks: an investigation of cognitive-motor dual-tasking in relapsing remitting multiple sclerosis**

L. Paul (Glasgow, United Kingdom)

**Patient reported symptoms associated with activities of daily living in upper limb impairment for people with multiple sclerosis**

T. Street (Salisbury, United Kingdom)

**Neuropathic pain in multiple sclerosis**

C.A. Young (Liverpool, United Kingdom)

**Restless leg syndrome (RLS) in patients with multiple sclerosis (MS): evaluation of risk factors and clinical impact**

L. Lebrato Hernandez (Seville, Spain)

**Multiple sclerosis and EDSS: the imprint of depression and subjective cognitive fatigue on cognitive function**

D. Golan (Haifa, Israel)

**Correlation between static and dynamic balance in people with multiple sclerosis: quantitative assessment using inertial sensor and force platform**

S. Caggiari (Cagliari, Italy)

## Scientific Programme

**Clinical use of wearable inertial sensors to assess spatial-temporal parameters of gait in people with multiple sclerosis: correlation with MSWS-12**

S. Caggiari (Cagliari, Italy)

**Lower step count assessed using commercially available accelerometry (Fitbit) is associated with MS disability: the FITriMS study**

V.J. Block (San Francisco, United States)

**Early disturbances in multimodal evoked potentials as a prognostic factor for long-term disability in relapsing-remitting multiple sclerosis patients**

F. London (Brussels, Belgium)

**Validity and responsiveness of SaGAS 10 for rehabilitation research in multiple sclerosis (MS): an improved score for routine assessments**

C. Vaney (Crans Montana, Switzerland)

**Cognitive-motor interference and cerebellar involvement in patients with multiple sclerosis**

O. Argento (Rome, Italy)

**Elastography: a new diagnostic tool for the evaluation and quantification of multiple sclerosis spasticity**

G. Illomei (Cagliari, Italy)

**National Finnish Treatment Register for MS patients - first results**

M. Soilu-Hänninen (Turku, Finland)

**Efficient fine-grained video-based rating of motor dysfunction using setwise comparison**

S. Steinheimer (Bern, Switzerland)

**Validity of mobility measures in multiple sclerosis, according disability level: a European RIMS multi-center study**

I. Baert (Die, Belgium)

**Measuring treatment satisfaction in patients with RMS in the real world: is the TSQM fit for purpose? An evaluation using Teri-PRO study data**

J. Hobart (Plymouth, United Kingdom)

**Multivariate analysis of time and frequency domain parameters of baroreceptor sensitivity, heart rate and blood pressure variability in multiple sclerosis compared to age and sex matched controls - a non-invasive autonomic function analysis**

E. Barin (Sydney, Australia)

**The expanded timed up-and-go (ETUG) is a sensitive measure for predicting falls in multiple sclerosis patients**

C.B. Vaughn (Buffalo, United States)

**Expanded timed up-and-go (ETUG) test is associated with development of central atrophy over 5 years in multiple sclerosis patients**

D. Jakimovski (Buffalo, United States)

## Scientific Programme

**Internal construct validity and reliability of the neuropathic pain scale in multiple sclerosis: a rasch analysis**

C.A. Young (Liverpool, United Kingdom)

**A pilot study comparing the MSFC score to the DAM application, a self-assessment solution for MS patients**

S. Medjebar (Paris, France)

**Validating a participant-led computerised cognitive battery in people with multiple sclerosis**

L. Connell (London, United Kingdom)

**The associations between commonly used walking measures and physical and psychosocial outcomes in persons with multiple sclerosis**

T. Kahraman (Izmir, Turkey)

**Timed 25-foot walk instead of EDSS: does it make difference defining NEDA?**

J. Martins (Porto, Portugal)

**'Exploring dual task cost in people with multiple sclerosis; the relationship to falls status and cognitive function'**

G. Quinn (Limerick, Ireland)

**Unipedal stance test evaluation in progressive multiple sclerosis**

E. Ciampi (Barcelona, Spain)

**Multiple Sclerosis, EDSS and physical self maintenance ability: cognitive impairment impacts self care ability beyond the physical ability**

M. Gudesblatt (Patchogue, United States)

**Multiple sclerosis and cognitive fatigue: relationship to visual evoked potential latency**

M. Gudesblatt (Patchogue, United States)

**The feasibility of computerized cognitive monitoring in the clinic and community in people with MS: initial results of the msreactor study**

A. van der Walt (Melbourne, Australia)

**Multiple sclerosis, EDSS, and objective cognitive function: a walking scale with no apparent brains and limited thought**

M. Gudesblatt (Patchogue, United States)

**Multiple sclerosis & patient-derived disease steps (PDDS): a walking scale with no hands**

M. Gudesblatt (Patchogue, United States)

**Validation of the tremor biomechanics analysis laboratory (TREMBAL) software in MS tremor**

A. van der Walt (Melbourne, Australia)

**The expenditure for treating multiple sclerosis and the 10-year risk of disease progression**

M. Moccia (Napoli, Italy)

## Scientific Programme

**Comparison of cost, feasibility and satisfaction of telemedicine versus in-person visits for multiple sclerosis patients: a randomised cross-over study**

J.F. Robb (Rochester, United States)

**Healthcare resource utilisation and costs in patients with active relapsing-remitting multiple sclerosis treated with alemtuzumab vs. SC IFNB-1a (CARE-MS II)**

A. Smith (Cambridge, United States)

**Employment in MS: validation of a set of assessment instruments in German MS patients**

P. Flachenecker (Bad Wildbad, Germany)

**Social economic costs, quality of life and experience in multiple sclerosis patients and their caregivers: the IMPRESS (International Multiple Sclerosis) survey**

M. Tinelli (London, United Kingdom)

**Societal costs of multiple sclerosis in Ireland: study results**

C. McGuigan (Dublin, Ireland)

**A retrospective claims analysis: compliance and discontinuation rates among canadian MS patients treated with disease-modifying therapies - Canadian real world experience**

P. Duquette (Montréal, Canada)

**Treatment discontinuation and clinic resource utilization among patients treated with fingolimod and dimethyl fumarate in the real-world setting**

P. Repovic (Seattle, United States)

**Macular combined ganglion cell and inner plexiform layers (mGCIPL) thinning in the unaffected eye of patients at optic neuritis onset**

S. Collorone (London, United Kingdom)

**Clinical and radiological characteristics of optic neuritis in demyelinating disorder with serum anti-MOG antibody**

I. Nakashima (Sendai, Japan)

**Optical coherence tomography (OCT) pattern in myelin-oligodendrocyte-glycoprotein (MOG) autoantibodies positive patients: characterised by severe optic neuritis and subclinical retinal axonal degeneration**

J. Havla (Munich, Germany)

**Risk of multiple sclerosis after optic neuritis in patients with normal baseline MRI**

H.D. Hambardzumyan (Yerevan, Armenia)

**The value of visual parameters which evaluated overt or subclinical optical neuritis in multiple sclerosis by various methods**

Ö. Öcek (Izmir, Turkey)

**Optic neuritis in anti aquaporin 4 and myelin oligodendrocyte glycoprotein autoantibody: a comparative study**

K. Lecouturier (Paris, France)

## Scientific Programme

**Prevalence of internuclear ophthalmoplegia in multiple sclerosis: a prospective infrared oculography study**

J.A. Nij Bijvank (Amsterdam, Netherlands)

**A rare variant of INO in multiple sclerosis: posterior INO of Lutz**

J.A. Nij Bijvank (Amsterdam, Netherlands)

**Systemic vascular disease burden in multiple sclerosis: a post mortem case - control study**

R. Geraldes (Oxford, United Kingdom)

**Immunohistochemical characterization of mesenchymal perivascular stem/stromal cells in multiple sclerosis and healthy brain tissue**

E. Iacobaeus (Stockholm, Sweden)

**Pro-inflammatory cytokine elevation in MOG-Ab+, AQP4-Ab+ disorder and MS**

K. Kaneko (Sendai, Japan)

**Temporal changes of pathological features in NMO spectrum disorders with aquaporin4 antibody**

Y. Takai (Sendai, Japan)

**Claudin-4 is required for astrocytic tight junction formation and protects against inflammatory lesion size and severity in the central nervous system**

C. Chapouly (New York, United States)

**High prolactin serum level predicts low inflammatory damage during INF-beta treatment in patients with MS**

L. De Giglio (Rome, Italy)

**Th17 induced neuronal injury is initiated by KV1.3-mediated glutamate release**

K. Birkner (Mainz, Germany)

**The neuroprotective protein ARNT2 as a mediator of neuronal health and disease progression in models of MS**

J. Quandt (Vancouver, Canada)

**IFN $\gamma$  reduces expression of connexin43 in astrocytes via activation of microglia**

M. Watanabe (Fukuoka, Japan)

**Anti-lipid serum antibodies in MS patients: predominant recognition of cholesterol**

A. Jurewicz (Lodz, Poland)

**CD14 expression in CSF, meningeal infiltrates and cortical lesions is associated with less severe and slower progression in multiple sclerosis**

R. Magliozzi (Verona, Italy)

**Severely exacerbated neuromyelitis optica rat model with extensive tissue damage including astrocytopathy and axonal damage by high affinity anti-aquaporin-4 monoclonal antibody**

T. Misu (Sendai, Japan)

## Scientific Programme

**Dynamic changes of hippocampal subfields in CIS patients: a 3-month MRI longitudinal study**

L. Cacciaguerra (Milan, Italy)

**c-Myc activity controls encephalitogenic T helper cells development**

M.P. Mycko (Lodz, Poland)

**Monitoring optic nerve damage in an animal model of multiple sclerosis by multiparametric MRI**

L. Chaabane (Milan, Italy)

**Therapeutic effects of oral dimethyl fumarate in the Theiler's murine encephalomyelitis virus model of multiple sclerosis**

N.G. Carlson (Salt Lake City, United States)

**Acute axonal damage in three different murine models of multiple sclerosis**

T. Hochstrasser (Munich, Germany)

**Low-dose, subcutaneous anti-CD20 therapy effectively depletes B-cells and ameliorates CNS autoimmunity**

P. Smith (Basel, Switzerland)

**An alternatively activated phenotype in mouse microglia promotes phagocytosis and may be beneficial in the clearance of myelin debris**

L. Nicol (Cambridge, United Kingdom)

**Investigation of remyelination facilitating factors produced by astrocytes in an animal model of multiple sclerosis**

S. Hochmeister (Graz, Austria)

**Apolipoprotein E modulates abcg2 transporter expression and function in the context of teriflunomide-therapy of experimental autoimmune encephalomyelitis**

L. Schrewe (Bochum, Germany)

**Role of blood-brain barrier in an animal model of cortical progressive multiple sclerosis**

B.A. Silva (Buenos Aires, Argentina)

**Oligodendrocyte apoptosis triggers peripheral immune cell recruitment into the forebrain**

U. Chrzanowski (Munich, Germany)

**The transcription factor Ddit3/Chop as a regulator of neuroinflammation**

M. Gottschling (Munich, Germany)

**Widespread cortical demyelination of both hemispheres can be induced by injection of pro-inflammatory cytokines via an implanted catheter in the cortex of MOG- immunized rats**

S. Hochmeister (Graz, Austria)

**Identification of glatiramer acetate B lymphocytes targets in multiple sclerosis**

C. Criscuolo (Naples, Italy)

## Scientific Programme

**Circulating microRNAs as biomarkers for rituximab therapy, in neuromyelitis optica (NMO)**

A. Vaknin-Dembinsky (Jerusalem, Israel)

**Defining a robust disease severity phenotype for use in genetic association studies**

V.G. Jokubaitis (Parkville, Australia)

**Genetic factors associated with clinical phenotypes of multiple sclerosis in the Japanese**

T. Matsushita (Fukuoka, Japan)

**Similarities and differences in the gene expression profiles of glatopa and copaxone**

S. Koltz (Cambridge, United States)

**Lymphoid somatic mutations in multiple sclerosis**

P. Tienari (Helsinki, Finland)

**No association of the SLC9A9 gene variant rs2800 and disease activity in MS patients before and during treatment with interferon-beta**

H. Bach Søndergaard (Copenhagen, Denmark)

**Multiple sclerosis risk variant PLEK**

C. Larochelle (Montreal, Canada)

**miRNAs in CSF allow the prediction of multiple sclerosis patients likely to have a severe course**

E. Quintana (Girona, Spain)

**A candidate gene study testing the role of sphingosine pathway genes on response to fingolimod in a cohort of Italian relapsing-remitting multiple sclerosis patients**

F. Esposito (Milan, Italy)

**Familial risk of childhood- versus late-onset multiple sclerosis: a nationwide cohort study**

A. Manouchehrinia (Stockholm, Sweden)

**Up-regulation of miR-146a, miR-146b and miR-21 in CSF were found in patients with active MS lesions**

E. Quintana (Girona, Spain)

**Differential DNA methylation patterns of neural gene promoters in neural precursor cells (NPCs) after cytokoine stimulation**

N. Grigoriadis (Thessaloniki, Greece)

**Similarities and differences in the gene expression profiles of copaxone and polimunol**

D. Laifenfeld (Petach Tikva, Israel)

**A P2X7 - P2X4 haplotype with near absent P2X7 surface expression impairs phagocytosis in familial multiple sclerosis**

J.S. Wiley (Parkville, Australia)

## Scientific Programme

**The effect of fingolimod treatment on natural killer cells**

N.P. Acar (Ankara, Turkey)

**EBV-specific CD8+ T cells are exhausted and senescent in multiple sclerosis patients**

C. Gasperini (Rome, Italy)

**The role of dopamine in regulating interactions of the immune and nervous system in multiple sclerosis**

A. Boyko (Moscow, Russian Federation)

**Epitope specificity of human MOG antibodies and their pathogenic effect in neuroinflammatory demyelinating diseases**

P. Peschl (Innsbruck, Austria)

**CNS-transmigration of distinct B-cell subsets through the choroid plexus in patients with multiple sclerosis**

B. Wildemann (Heidelberg, Germany)

**Mucosal biopsy reveals immunologic changes of the colon in patients with early multiple sclerosis**

M. Khalil (Graz, Austria)

**Dimethyl fumarate selectively affects memory and helper T cells in multiple sclerosis patients**

Y. Mao-Draayer (Ann Arbor, United States)

**A multicenter study on the diagnostic significance of a single cerebrospinal fluid IgG band**

A.M. Simone (Modena, Italy)

**The international MS microbiome study (iMSMS): investigating the role of gut microbiota in multiple sclerosis through open collaboration**

S.E. Baranzini (San Francisco, United States)

**M1/M2 macrophages' balance is altered in multiple sclerosis**

V. Chiurciu (Roma, Italy)

**Increased inflammatory activities of monocytes from neuromyelitis optica spectrum disorder patients**

B.S. Kong (Goyang, Korea, Republic of)

**In silico prediction analysis of immunoglobulin-driven T-B cell collaboration in multiple sclerosis**

R.A. Høglund (Lørenskog, Norway)

**Multiple sclerosis and Hashimoto's thyroiditis: differences and similarities in the immune regulation**

A. Bertolotto (Orbassano, Italy)

**Role of Toll-like receptor 2 in mediating infection and inflammation in multiple sclerosis**

M.J. Hossain (Nottingham, United Kingdom)

## Scientific Programme

**ALCAM regulates B cells migration across the barriers of the central nervous system**

L. Michel (Nantes, France)

**T and B lymphocyte subsets of anti myelin oligodendrocyte glycoprotein-related disorder and anti-aquaporin 4 antibody-positive neuromyelitis optica spectrum disorder in remission**

S. Tanaka (Kawagoe, Japan)

**Transforming growth factor- $\beta$ 1-producing regulatory B cells limit the induction phase of autoimmune neuroinflammation**

P.H. Lalive (Geneva, Switzerland)

**IL-6/IL-10 producing B cells in patients with clinically isolated syndrome: association with radiological/clinical evolution**

T. Guerrier (Lille, France)

**Synergistic effect of vitamin D on methylprednisolone-induced T-cell apoptosis**

M. Pistor (Bochum, Germany)

**Cerebrospinal fluid antibody-secreting cells, but not memory B cells, are dominated by IgG in multiple sclerosis**

J. Curnow (Birmingham, United Kingdom)

**Altered humoral immunity to Mycobacterium paratuberculosis epitopes in Japanese multiple sclerosis patients**

D. Cossu (Tokyo, Japan)

**Late Epstein-Barr virus infection and a second virus are linked to multiple sclerosis risk**

M. Biström (Umeå, Sweden)

**Epstein-Barr virus and immune gene expression analysis of laser microdissected immune infiltrates from the multiple sclerosis brain**

C. Veroni (Rome, Italy)

**Phase 2 baseline versus treatment clinical trial of the HIV drug raltegravir in patients with active relapsing remitting multiple sclerosis: the INSPIRE study results**

M. Marta (London, United Kingdom)

**Phase 2 baseline versus treatment clinical trial of the HIV drug raltegravir in patients with active relapsing remitting multiple sclerosis: the INSPIRE study biomarker outcome results**

J. Gold (London, United Kingdom)

**Antibodies against Helicobacter pylori-specific antigens differentiate relapsing remitting from secondary progressive multiple sclerosis**

V. Tsimourtou (Larissa, Greece)

**Intestinal microbiota in multiple sclerosis: influence of treatment with interferon  $\beta$ -1b**

F. Castillo Álvarez (Logroño, Spain)

## Scientific Programme

**Adipokines modulate immune response in obese multiple sclerosis patients affecting different cell populations**

J. Correale (Buenos Aires, Argentina)

**Mendelian randomization provides evidence for a causal effect of low vitamin D on multiple sclerosis risk in two independent populations**

M. Bäärnhielm (Stockholm, Sweden)

**Gene-environment interaction study in multiple sclerosis using a “candidate-interactome” approach**

R. Mechelli (Rome, Italy)

**Body mass index is causally associated with pediatric and adult multiple sclerosis onset: a study of over 20,000 individuals using Mendelian Randomization**

L.F. Barcellos (Berkeley, United States)

**Body mass index during adolescence, rather than childhood, is critical in determining multiple sclerosis risk**

L. Alfredsson (Stockholm, Sweden)

**Relationship between microvesicles and free radicals in multiple sclerosis patients**

M.A. Gironi (milano, Italy)

**K2P channels: novel regulators of oligodendroglial cell functions**

S. Albrecht (Muenster, Germany)

**Dual functions of oligodendrocyte-encoded potassium channel Kir4.1 during development and remyelination**

L. Schirmer (San Francisco, United States)

**c-Fos reporter analyses of astrocytic activity modulated by S1P signaling in experimental autoimmune encephalomyelitis (EAE)**

J. Chun (La Jolla, United States)

**EGFL7: a novel player in multiple sclerosis implicated in CNS infiltration**

C. Larochelle (Montreal, Canada)

**Investigation of microtubule and actin integrity in the optic nerve during autoimmune optic neuritis**

J. Bojcevski (Heidelberg, Germany)

**The CSF-profile of patients with primary progressive multiple sclerosis (PPMS) in a large multicentric cohort**

A. Abdelhak (Ulm, Germany)

**Deterioration of cardiac repolarization is different during primary progressive and relapsing-remitting multiple sclerosis**

A. Mikkola (Kuopio, Finland)

**Early relapses and cortical damage predict the risk of developing secondary progressive MS**

A. Scalfari (London, United Kingdom)

## Scientific Programme

**The gut microbiome affects the progression of disease in a murine model of secondary progressive MS**

L. Kasper (Hanover, United States)

**Cerebellar volume as an outcome measure in therapeutic trials of primary progressive multiple sclerosis**

M. Inglese (New York, United States)

**Disease trajectory in secondary progressive multiple sclerosis: a ten years follow-up study**

E. D'Amico (Catania, Italy)

**Could fampridine change gait kinematics to improve walking speed in primary progressive multiple sclerosis?**

I. González-Suárez (Madrid, Spain)

**Residual intrathecal inflammation after natalizumab and methylprednisolone treatment in progressive multiple sclerosis correlates with axonal damage**

J. Romme Christensen (Copenhagen, Denmark)

**Prickle1 as positive regulator of oligodendrocyte differentiation**

R. Zilkha-Falb (Ramat-Gan, Israel)

**Inhibition of hyaluronidase activity by modified flavonoids promotes functional remyelination**

L.S. Sherman (Beaverton, United States)

**Longitudinal assessment of large-scale brain functional networks in patients with multiple sclerosis: relationship with clinical disability and cognitive impairment**

P. Preziosa (Milan, Italy)

**pH and KV channel conductance are not central to damage of demyelinated axons in the cuprizone mouse model**

V. Schultz (Glasgow, United Kingdom)

**Establishing a reference population for individualized brain volume assessment in multiple sclerosis: toward clinical use of brain volume tools**

P. Beauchemin (Vancouver, Canada)

**Influence of edema on MRI measures of white matter: a quantitative assessment of in vivo MTR, DTI and post-mortem quantitative immunohistochemistry in a mouse model of inflammatory, vasogenic edema**

R. Rajagovindan (North Chicago, United States)

**Sensitivity of MRI measures to axonal and/or myelin repair in the presence of inflammation: a quantitative assessment of in vivo MTR, DTI and post-mortem immunohistochemistry in a rodent model of spontaneous remyelination**

R. Rajagovindan (North Chicago, United States)

## Scientific Programme

**Convergent effects of a functional C3 polymorphism on cognitive impairment, brain atrophy and demyelination in multiple sclerosis**

T. Roostaei (Toronto, Canada)

**T1 hyperintensity in the dentate nuclei of multiple sclerosis patients correlates with number of administrations and total dose of gadolinium based contrast agent**

M.K. Beyer (Oslo, Norway)

**Cognitive decline in multiple sclerosis is linear and associated with lesion accumulation and corpus callosal atrophy: results of an 18-year longitudinal study**

T. Granberg (Stockholm, Sweden)

**Late MS is not associated with increased  $\beta$ -amyloid deposition**

B. Zeydan (Rochester, United States)

**Quantitative susceptibility mapping and iron-related single nucleotide polymorphisms: an association with multiple sclerosis**

J. Hagemeyer (Buffalo, United States)

**Resting functional connectivity does not mirror task functional connectivity in multiple sclerosis**

A.A. Alahmadi (London, United Kingdom)

**FLAIR2 improves automatic lesion segmentation over FLAIR in MS patients**

M. Le (Vancouver, Canada)

**Impaired retinal microcirculation related to ganglion cell layer thickness in multiple sclerosis**

H. Jiang (Miami, United States)

**Retinal nerve fiber layer birefringence alteration in multiple sclerosis**

J. Wang (Miami, United States)

**The neural basis of fatigue in Multiple Sclerosis: a multimodal MRI approach**

A.M. Novo (Coimbra, Portugal)

**PREVAIL: predicting recovery through estimation and visualization of active and incident lesions**

J.D. Dworkin (Philadelphia, United States)

**Thalamic magnetic resonance spectroscopy in highly active multiple sclerosis**

L. Peress (London, United Kingdom)

**T2\* at 3T detects a higher proportion of white matter lesions with central veins compared to FLAIR-SWI in patients with MS**

A.P. Samaraweera (Nottingham, United Kingdom)

**Impact of 3 Tesla MRI on diagnosis in clinically isolated syndrome: a MAGNIMS multicentre study**

M.H. Hagens (Amsterdam, Netherlands)

## Scientific Programme

**Apparent fiber density: A novel method to detect axonal degeneration in patients with MS**

S. Gajamange (Melbourne, Australia)

**Quantitative susceptibility mapping of multiple sclerosis lesions in a longitudinal cohort using magnetic resonance imaging**

J. Hagemeyer (Buffalo, United States)

**Outer and inner cortical MTR abnormalities in clinically isolated syndromes**

R.S. Samson (London, United Kingdom)

**Reproducible quantitative cervical spinal cord MRI for progressive MS**

J.-W. Kim (New York, United States)

**Detection of new multiple sclerosis lesions on longitudinal brain MRI**

M. Cabezas (Barcelona, Spain)

**The two cytoarchitectonic divisions of BA 4 show distinguishable BOLD-force profiles in multiple sclerosis**

A.A. Alahmadi (London, United Kingdom)

**Cladribine effect on brain volume loss and its correlation with disability progression in patients with relapsing multiple sclerosis**

N. De Stefano (Siena, Italy)

**Fatigue in multiple sclerosis: the contribution of resting-state functional connectivity reorganization**

A. Bisecco (Napoli, Italy)

**Predicting gadolinium enhancement using non-enhanced FLAIR MRI imaging in relapsing-remitting multiple sclerosis**

M. Guranda (Winnipeg, Canada)

**Detection of cortical lesions by 3D-double inversion recovery imaging in Japanese patients with multiple sclerosis and neuromyelitis optica spectrum disorder**

K. Shinoda (Fukuoka, Japan)

**Cerebral microbleeds in multiple sclerosis evaluated on susceptibility-weighted imaging and quantitative susceptibility mapping are associated with more severe cognitive and physical outcomes**

R. Zivadinov (Buffalo, United States)

**Continuous short-term structural network reorganisation beyond atrophy in patients with RRMS**

V. Fleischer (Mainz, Germany)

**Correlations of volumetric and R2\*-defined microstructural abnormalities in hippocampus and amygdala with cognition in MS**

A.H. Cross (St. Louis, United States)

**High resolution, quantitative magnetic susceptibility and phase mapping MRI techniques show increased iron deposition in patients with multiple sclerosis**

M.S. Hbahbih (Amman, Jordan)

## Scientific Programme

**Increased total sodium concentration in asymptomatic T2 lesions in clinically isolated syndrome**

S. Collorone (London, United Kingdom)

**A multicentre study of quantitative susceptibility mapping in sub-cortical deep gray matter structures in relapsing multiple sclerosis**

R. Zivadinov (Buffalo, United States)

**An abnormal periventricular gradient in magnetisation transfer ratio occurs early in multiple sclerosis**

J.W.L. Brown (Cambridge, United Kingdom)

**Brain functional MRI changes in multiple sclerosis patients treated with Tetrahydrocannabinol:Cannabidiol (THC:CBD) oromucosal spray for spasticity**

F. Gobbin (Verona, Italy)

**Subclinical optic nerve involvement in CIS patients demonstrated by MRI is associated with McDonald MS 2010 criteria**

O. Outteryck (Lille, France)

**Grey matter hypoperfusion and subsequent brain atrophy in MS: a longitudinal MRI study with pseudo-continuous arterial spin labeling**

L. Freeman (Houston, United States)

**The cerebello-thalamic tract as a neural correlate for tremor in multiple sclerosis**

F.M. Boonstra (Melbourne, Australia)

**Microstructural white matter correlates of motor fatigue in multiple sclerosis - a diffusion weighted imaging study**

C. Bauer (Hvidovre, Denmark)

**Heterogeneity of cortical lesions susceptibility map in multiple sclerosis and its neuropathological interpretation**

M. Castellaro (Padova, Italy)

**Neurite orientation dispersion and density imaging (NODDI) reflects early microstructural brain tissue changes in clinically isolated syndrome (CIS)**

S. Collorone (London, United Kingdom)

**Corpus callosum in clinically isolated syndromes: lesion distribution, atrophy and predictor value to conversion**

D. Pareto (Barcelona, Spain)

**Cortical and deep grey matter network changes in secondary progressive multiple sclerosis**

K.A. Meijer (Amsterdam, Netherlands)

**Correlation between brain volume change and T2 relaxation time in patients with clinically isolated syndrome**

A. Rovira (Barcelona, Spain)

**An integrated imaging informatics software platform to improve the analysis of clinical trials and research data in MS**

B. Kanber (London, United Kingdom)

## Scientific Programme

**Multiple MRI measures to predict disability in MS patients: which works best?**

S. Ruggieri (Rome, Italy)

**Decreased susceptibility of the thalamus is associated with increased disability in patients with multiple sclerosis**

R. Zivadinov (Buffalo, United States)

**Impact of fingolimod on MRI brain measures in routine clinical practice: interim results from a longitudinal observational, multicenter real-world outcome study in multiple sclerosis patients**

R. Zivadinov (Buffalo, United States)

**The effect of intramuscular interferon beta-1a on spinal cord volume in relapsing-remitting multiple sclerosis**

S. Dupuy (Boston, United States)

**Protective personality traits for memory are related to larger hippocampal volume in MS**

V.M. Leavitt (New York, United States)

**Prospective measurement of quantitative spinal cord MRI in radiologically isolated syndrome: baseline analysis**

P. Alcaide-Leon (Toronto, Canada)

**A MRI-pharmacokinetic study of gadolinium deposition in the dentate nucleus in multiple sclerosis patients receiving serial triple-doses of Gd for 14 consecutive months**

L. Wolansky (Cleveland, United States)

**Ultra-high field and gradient strength MRI reveal neuro-axonal pathology in cortex and white matter in early MS**

T. Granberg (Stockholm, Sweden)

**Whole brain white matter alterations revealed by diffusion basis spectrum imaging (DBSI) in multiple sclerosis**

A.H. Cross (St. Louis, United States)

**Long-term change in magnetisation transfer ratio detects chronic active lesions in multiple sclerosis**

Y. Zheng (Cleveland, United States)

**Diffusion tensor imaging shows brain structural damage associated with verbal memory in subjects with multiple sclerosis**

J. Puig (Girona, Spain)

**Physical activity levels are associated with hippocampal dentate gyrus volume of pediatric patients with acquired demyelinating syndromes**

G. Longoni (Toronto, Canada)

**Diffusion basis spectrum imaging in acute and remote optic neuritis**

R.T. Naismith (Saint Louis, United States)

**Diffusion tensor imaging of normal appearing white matter in patients with neuromyelitis optica spectrum disorder and multiple sclerosis**

S.-H. Kim (Goyang, Korea, Republic of)

## Scientific Programme

**Left versus right regional volumes related to cognitive deficits in multiple sclerosis**

S.M. Belliston (Kansas City, United States)

**Cortical mantle thinning in pediatric MS: correlations with motor function**

R. Datta (Philadelphia, United States)

**Longitudinal study of MS lesions using multi-parametric ultra-high field (7Tesla) MRI**

I. Kister (New York, United States)

**Quantifying lesion progression in multiple sclerosis: a novel magnetic resonance imaging pipeline**

C. Wang (Sydney, Australia)

**Investigating early evidence of multiple sclerosis in a prospective study of asymptomatic high-risk first-degree family members**

Z. Xia (Boston, United States)

**Global and regional annual brain volume loss rates in physiological ageing**

R. Opfer (Hamburg, Germany)

**Cerebellar contribution to motor and cognitive impairment in multiple sclerosis patients: an MRI sub-regional structural analysis**

A. d'Ambrosio (Milan, Italy)

**Longitudinal evaluation of diffusion tensor imaging measures in patients meeting criteria for “No Evidence of Disease Activity”**

A. Harel (New York, United States)

**Signal abnormalities on magnetic resonance imaging in acute optic neuritis. A prospective study**

K.K. Soelberg (Vejle, Denmark)

**Thalamic functional connectivity in multiple sclerosis: the role of temporal thalamic sub-region in maladaptation**

A. d'Ambrosio (Milan, Italy)

**Deep gray matter atrophy in neuromyelitis optica spectrum disorder and multiple sclerosis**

J.-W. Hyun (Goyang, Korea, Republic of)

**Structural connectivity in multiple sclerosis and simulation of disconnection**

E. De Meo (Milan, Italy)

**Head motion during resting state fMRI acquisition significantly alter functional connectivity and it depends on patient disability**

E. Silvestri (Padova, Italy)

**Differences in brain MRI features between Japanese and Caucasian patients with multiple sclerosis**

Y. Nakamura (Fukuoka, Japan)

## Scientific Programme

**Impact of lesion segmentation and filling on cortical thickness estimation**

M. Castellaro (Padova, Italy)

**Leptomeningeal contrast enhancement in patients with neuromyelitis optica spectrum disorder**

S.V. Okar (Ankara, Turkey)

**Changes in diffusion-based structural brain network in relapsing-remitting multiple sclerosis**

T. Charalambous (London, United Kingdom)

**Retinal measures correlate with cognitive and physical disability in early multiple sclerosis**

S.J. Khoury (Boston, United States)

**Retinal nerve fibre layer changes over 2 years correlate with brain volume and N-acetylaspartate in alemtuzumab treated multiple sclerosis patients**

A.-L. Nguyen (Vancouver, Canada)

**Optical coherence tomography in secondary progressive multiple sclerosis: a baseline data report from the MS-SMART trial**

F. De Angelis (London, United Kingdom)

**Retinal nerve fiber layer and macular volume in familial and sporadic MS patients**

M. Siger (Lodz, Poland)

**Leptomeningeal contrast enhancement is associated with loss of retinal nerve fiber layer thickness and macular volume on optical coherence tomography in multiple sclerosis**

R. Zivadinov (Buffalo, United States)

**Retinal Layers as measured by optical coherence tomography are associated with distinct parameters of disease activity in multiple sclerosis**

B. Knier (München, Germany)

**Associations between optical coherence tomography measures and clinical visual outcomes in patients with multiple sclerosis**

A. Papadopoulou (Basel, Switzerland)

**Selective thinning of the maculo-papillary bundle and inner ganglion cell layer in radiologically isolated syndrome**

R. Karabudak (Ankara, Turkey)

**Optic neuritis does not mask progression of neurodegeneration affecting the macula in multiple sclerosis: a longitudinal OCT study**

D. Coric (Amsterdam, Netherlands)

**Signal quality dependency of intra-retinal segmentation algorithms in macular optical coherence tomography**

T. Oberwahrenbrock (Berlin, Germany)

## Scientific Programme

**MRI and neurophysiological correlates of upper limb function in multiple sclerosis**

M. Krbot Skoric (Zagreb, Croatia)

**Objective pupil perimetry and MS progression**

E.N. Ali (Canberra, Australia)

**Interoception and theory of mind in multiple sclerosis**

V. Sinay (Buenos Aires, Argentina)

**Linking neurotransmitters and functional connectivity: a multimodal study on relapsing-remitting and progressive MS**

J.C. Nantes (Montreal, Canada)

**Increased variability of temporal gait parameters among patient with MS at early stages of the disease**

A.-L. Dubessy (Paris, France)

**Autonomic dysfunction in patients with neuromyelitis optica disorders**

Y.S. Kim (Seoul, Korea, Republic of)

**The VEMP score as a predictor of disability progression in patients with multiple sclerosis**

T. Gabelić (Zagreb, Croatia)

**Vestibular evoked myogenic potentials in evaluating brainstem lesions in multiple sclerosis**

N. Celebisoy (Izmir, Turkey)

**Myelin loss alters cortical network functionality by mediating a reorganization of activity pattern of the cortical layers and triggering cognitive deficits in rodents**

M. Cerina (Münster, Germany)

**Hyperstable EEG-vigilance in multiple sclerosis patients**

M.G. Stoppe (Leipzig, Germany)

**Episodic autobiographical memory retrieval characteristics in multiple sclerosis**

C. Harand (Caen, France)

**Baseline cognition in those undergoing mesenchymal stem cell transplant: is there an opportunity to detect a repair signal?**

L.A. Walker (Ottawa, Canada)

**Brain perfusion SPECT with Brodmann areas mapping and neurocognition in multiple sclerosis**

G. Nasios (Ioannina, Greece)

**Cognitive impairment and structural brain changes in patients with clinically isolated syndrome**

E. Hynčicová (Prague, Czech Republic)

## Scientific Programme

**Ambulation and cognition following treatment with dalfampridine in multiple sclerosis**

A.S. Drake (Buffalo, United States)

**Hippocampal atrophy as a neuroanatomical basis for memory deficits in MS: support for a degenerative model of MS memory decline**

J.F. Sumowski (New York, United States)

**The cognitive profile of multiple sclerosis patients who respond to fampridine**

R.N. Villar-Quiles (Madrid, Spain)

**The impact of the disease and cognitive impairment in employment and socioeconomic status in multiple sclerosis patients in a Latin American country**

S. Vanotti (Buenos Aires, Argentina)

**fMRI correlates of cognitive impairment and cognitive reserve in multiple sclerosis**

F. Mattioli (Brescia, Italy)

**Benefits of a cognitive rehabilitation program in relapsing-remitting multiple sclerosis patients**

M. Vázquez-Marrufo (Seville, Spain)

**Cognitive assessment with BICAMS battery during and after MS relapse**

N. Giedraitiene (Vilnius, Lithuania)

**An examination of cognitive fatigue and the interrelatedness of disease severity, fatigue, depression, and sleep quality**

L.A. Walker (Ottawa, Canada)

**Relationship between Vitamin D levels and cognitive impairment, depression and fatigue in relapsing remitting multiple sclerosis patients**

B.A. Silva (Buenos Aires, Argentina)

**Cognitive impairment in multiple sclerosis in a series of 228 patients: is SDMT useful as a screening tool?**

R.N. Villar-Quiles (Madrid, Spain)

**Depression, anxiety, and stress severities in multiple sclerosis patients using injectable vs. oral treatments**

N. Al-Salloum (Riyadh, Saudi Arabia)

**Differences in cognitive impairment and corpus callosum index between relapsing remitting and progressive multiple sclerosis in Chile**

M. Vasquez (Santiago, Chile)

**Cognition over the course of multiple sclerosis**

J. Gich (Girona, Spain)

**CSF markers of axonal damage, glial activation and immune response in acute myelitis**

M. Mañé-Martínez (Tarragona, Spain)

## Scientific Programme

**MRI biomarkers of opicinumab (Anti-LINGO-1) repair in relapsing MS: results from the Phase 2b SYNERGY trial**

M. Mellion (Cambridge, United States)

**Soluble CD27 levels in CSF as a prognostic biomarker in clinically isolated syndrome**

R.M. van der Vuurst de Vries (Rotterdam, Netherlands)

**Molecular signatures associated with cognitive dysfunctions in pediatric multiple sclerosis**

M. Liguori (Bari, Italy)

**sCD27, IgG and IgM index as potential CSF biomarkers for predicting MRI activity in newly diagnosed MS patients**

A.-K. Klein (Munich, Germany)

**Long non coding RNA (LncRNAs) expression analysis in patients with multiple sclerosis: potential biomarkers of disease susceptibility and progression**

C. Fenoglio (Milan, Italy)

**Neurofilament light chain and disease progression in MS**

A. Bhan (Stavanger, Norway)

**Prognostic role of cerebrospinal fluid neurofilament, chitinase-3-like and tau levels in patients with clinically isolated syndrome**

A.M. Simone (Modena, Italy)

**Endothelin-1 as a candidate cerebrovascular biomarker in multiple sclerosis**

C. Criscuolo (Naples, Italy)

**Kappa free-light chains in cerebrospinal fluid show prognostic significance for long-term disability progression in multiple sclerosis**

G. Makshakov (Saint-Petersburg, Russian Federation)

**No association of serum Netrin-1 with MRI based evidence of disease activity in early multiple sclerosis**

M.M. Voortman (Graz, Austria)

**Serum exosomes as biomarkers of multiple sclerosis**

I. Selmaj (Lodz, Poland)

**Extending the spectrum of anti-MOG antibody positive autoimmune inflammatory CNS disease: overlapping demyelinating syndromes in patients with systemic lupus erythematosus**

A.-K. Pröbstel (Basel, Switzerland)

**Comparison between recurrent and monophasic MOG antibody-associated demyelinating disease**

L. Salles (Sao Paulo, Brazil)

**Epigenetic profile of chromosome conformation signatures underlying multiple sclerosis and its severity**

J.P. Joseph (Kuala Lumpur, Malaysia)

## Scientific Programme

**Molecular profiling of damage and repair in the CSF by translating transcriptome data to CSF proteome**

Z. Illes (Odense, Denmark)

**Longitudinal assessment of cervical cord atrophy across MS clinical phenotypes: a multicenter study**

P. Preziosa (Milan, Italy)

**Gene expression and cytokine protein analysis of the cerebrospinal fluid in early multiple sclerosis: association with grey matter damage assessed by MR imaging**

D. Seppi (Padova, Italy)

**Myeloid microvesicles and risk of multiple sclerosis in patients with clinically isolated syndromes**

G. Dalla Costa (Milan, Italy)

**Accumulation of disability on the neurophysical disability progression composite: daclizumab high-yield process vs. interferon beta-1a in relapsing-remitting multiple sclerosis patients from the DECIDE study**

J.L. Bennett (Aurora, United States)

**Placebo-controlled Phase 3 study of delayed-release dimethyl fumarate in patients with relapsing multiple sclerosis from Asia-Pacific and other countries**

B. Zhu (Cambridge, United States)

**Results of a non-randomised, parallel-group clinical trial to assess efficacy and safety of fingolimod in treatment-naïve and previously treated patients with relapsing-remitting multiple sclerosis. The EARLIMS Study**

O. Fernández (Málaga, Spain)

**Case-report: no evidence of disease activity in neuromyelitis optica patient 5 years after allogeneic hematopoietic stem cells transplantation**

E. Krasulova (Prague, Czech Republic)

**Alemtuzumab significantly improves disability in patients with active relapsing-remitting MS and an inadequate response to prior therapy as assessed using a novel, composite measure: confirmed disability improvement-plus: results from CARE-MS II**

B. Singer (St. Louis, United States)

**Effectiveness of mycophenolate mofetil as first line therapy in AQP4-IgG, MOG-IgG and seronegative neuromyelitis optica spectrum disorders**

A. Montcuquet (Limoges, France)

**Cutaneous events in daclizumab HYP-treated patients did not impact patient-reported outcomes in the DECIDE study**

G. Sabatella (Cambridge, United States)

**Durable effect of alemtuzumab on MRI lesion outcomes over 5 years in patients with highly active relapsing-remitting multiple sclerosis who had an inadequate response to prior therapy (CARE-MS II)**

G. Comi (Milan, Italy)

## Scientific Programme

**Assessment of No Evidence of Disease Activity (NEDA-3) in alemtuzumab-treated patients with aggressive multiple sclerosis who failed multiple disease-modifying drugs**

L. Prosperini (Rome, Italy)

**Rituximab treatment in italian NMOSD patients**

M. Radaelli (Milan, Italy)

**Real life efficacy and tolerability of Teriflunomide a multicentre study**

P. Annovazzi (Gallarate, Italy)

**Effects of generic glatiramer acetate (BCD-063) on magnetic resonance imaging outcomes in patients with relapsing multiple sclerosis. A randomized double-blind 48 weeks clinical trial**

N.N. Babicheva (Kazan, Russian Federation)

**Efficacy of daclizumab HYP versus intramuscular interferon beta-1a in patients without neutralising antibodies against interferon beta in the DECIDE study**

A. Bertolotto (Orbassano, Italy)

**Three-year real-world data in fingolimod treatment: the effects on cognitive function**

S. Ozakbas (Izmir, Turkey)

**Does clinicians' risk attitudes influence therapeutic decisions? Translating principles from behavioral economics to multiple sclerosis care**

G. Saposnik (Toronto, Canada)

**Australian cladribine experience**

T. Kalincik (Melbourne, Australia)

**Boswellic acids immunomodulate T cell populations in relapsing-remitting multiple sclerosis in the SABA phase IIa clinical trial**

K.H. Stürner (Hamburg, Germany)

**Preservation of CD25 protein expression on CD4+ Treg by vitamin D3 supplementation in relapsing remitting multiple sclerosis**

J. Smolders (Sittard, Netherlands)

**Teriflunomide (Aubagio®) reduces glutamate, and possible excitotoxicity, in cortico-basal ganglionic-thalamo-cortical connectivity in mouse model of multiple sclerosis**

C.M. Modica (Buffalo, United States)

**An open-label add-on trial of cetirizine for neuromyelitis optica: preliminary results**

I. Katz Sand (New York, United States)

**Alemtuzumab long-lasting immunological effects: a 48 months follow-up observation**

L. Durelli (Orbassano, Italy)

## Scientific Programme

**Immune regulatory effects of high dose vitamin D3 supplementation in a randomized controlled trial in relapsing remitting multiple sclerosis patients receiving IFN $\beta$ : the SOLARIUM study**

A.-H. Muris (Maastricht, Netherlands)

**Long term changes in T cell subsets following cessation of fingolimod**

M. Ghadiri (Montreal, Canada)

**Efficacy of daclizumab HYP vs intramuscular interferon beta-1a on 24-week sustained disability progression using a modified multiple sclerosis functional composite**

S. Cohan (Portland, United States)

**Effect of dimethylfumarate treatment on lymphocytes and antigen presenting cells in multiple sclerosis patients**

M.A. Mazzola (Boston, United States)

**Seven-year follow-up of the efficacy of delayed-release dimethyl fumarate in newly diagnosed patients with relapsing-remitting multiple sclerosis: integrated analysis of DEFINE, CONFIRM, and ENDORSE**

R. Gold (Bochum, Germany)

**Characterisation of the lymphadenopathy events observed in the daclizumab HYP clinical trials**

G. Lima (Cambridge, United States)

**A randomized, open-label study to assess the immune response to vaccination in patients with relapsing forms of multiple sclerosis treated with delayed-release dimethyl fumarate compared to non-pegylated interferon**

J. Howard (New York, United States)

**Effectiveness of delayed-release dimethyl fumarate on clinical disease activity and patient-reported outcomes in patients with relapsing-remitting multiple sclerosis in the real-world setting: a multicentre, open-label study (PROTEC)**

T. Berger (Innsbruck, Austria)

**Cladribine tablets in the treatment of patients with multiple sclerosis: an integrated analysis of infections in association with severe lymphopenia**

S. Cook (Newark, United States)

**Benefits of cladribine tablets on the proportion of patients with multiple sclerosis free from clinical and radiological indicators of disease activity in the CLARITY EXTENSION study**

G. Giovannoni (London, United Kingdom)

**Metabolomics identifies novel effects of dimethyl fumarate on lipid metabolism in relapsing remitting MS**

P. Bhargava (Baltimore, United States)

**A retrospective analysis of discontinuation rates and reasons for discontinuation in multiple sclerosis patients treated with delayed-release dimethyl fumarate (Biogen ONE Support Program)**

M. Vlaicu (Mississauga, Canada)

## Scientific Programme

**A novel Nrf2 inducer TFM-735 ameliorates experimental autoimmune encephalomyelitis in mice**

C. Higashi (Gotemba, Japan)

**Fingolimod in routine clinical practice: Canadian experience**

V. Bhan (Halifax, Canada)

**Benefits of cladribine tablets on the achievement of no evidence of disease activity (NEDA) status in patients with multiple sclerosis: analysis of pooled double-blind data from the CLARITY and ONWARD studies**

G. Giovannoni (London, United Kingdom)

**Benefits of cladribine tablets on magnetic resonance imaging (MRI) outcomes in patients with multiple sclerosis: analysis of pooled double-blind data from the CLARITY and ONWARD studies**

G. Giovannoni (London, United Kingdom)

**Benefits of cladribine tablets on relapse rates and disability progression in patients with multiple sclerosis: analysis of pooled double-blind data from the CLARITY and ONWARD studies**

G. Giovannoni (London, United Kingdom)

**Cladribine tablets in the treatment of patients with multiple sclerosis: an integrated analysis of safety from the multiple sclerosis clinical development program**

S. Cook (Newark, United States)

**Reduction of lymphopenia by cladribine tablets under retreatment guidelines: a long-term follow-up analysis of patients in the ORACLE-MS study**

T. Leist (Philadelphia, United States)

**Stable disability and patient-reported performance outcomes over 48 weeks of teriflunomide treatment: results from the Phase 4 Teri-PRO Study**

R. Gold (Bochum, Germany)

**Impact of teriflunomide treatment on real-world quality of life in the Phase 4 Teri-PRO Study**

R. Gold (Bochum, Germany)

**Teriflunomide real-world safety profile: results of the Phase 4 Teri-PRO Study**

P.K. Coyle (Stony Brook, United States)

**Comparative analysis of adherence and persistence for delayed-release dimethyl fumarate versus interferons and glatiramer acetate - a population based study in Sweden**

A. Berglund (Upplands Väsby, Sweden)

**Teriflunomide and dimethylfumarate: prescription and patients' satisfaction in a real life setting**

X. Moisset (Clermont-Ferrand, France)

## Scientific Programme

**Real-life data from efficacy of fingolimod treatment in multiple sclerosis patients in Turkey**

M. Terzi (Samsun, Turkey)

**DMF induces differential apoptosis of T cell subsets and leads to a shift in the regulatory to effector T cell balance in MS patients**

M. Ghadiri (Montreal, Canada)

**Interim report on the safety and efficacy of long-term daclizumab HYP treatment for up to 5 years in EXTEND**

L. Kappos (Basel, Switzerland)

**Lymphocyte depletion and repopulation is consistent across alemtuzumab treatment courses in patients with relapsing-remitting multiple sclerosis: 6-year analysis of patients from the CARE-MS studies**

A. Boyko (Moscow, Russian Federation)

**Rebound disease activity reduction in relapsing multiple sclerosis patients transitioned from natalizumab to teriflunomide**

S. Cohan (Portland, United States)

**Efficacy of natalizumab and fingolimod in multiple sclerosis in real world clinical setting: a 2-year follow-up study**

R. Totaro (L'Aquila, Italy)

**Comparative efficacy and discontinuation of dimethyl fumarate and fingolimod as first line and second line therapy in clinical practice**

C.M. Hersh (Las Vegas, United States)

**Differences in tolerability and discontinuation rates in teriflunomide-treated patients: a real-world clinic experience**

H. Alnajashi (Jeddah, Saudi Arabia)

**Recovery of demyelinating optic neuritis after treatment with bioequivalent high doses of oral vs. intravenous corticosteroids: a randomized single blinded clinical trial**

S.A. Morrow (London, Canada)

**Adherence and tolerability to dimethyl fumarate in 253 patients with MS**

T. Sejbaek (Odense, Denmark)

**Significant increase of CD56+(bright) CD16- NK cells observed in multiple sclerosis patients treated with dimethylfumarate**

V. Camera (Verona, Italy)

**Inflammatory biomarkers and serum nitric oxide concentrations in multiple sclerosis patients according to the different kinds of disease modifying therapy**

M. Adamczyk-Sowa (Zabrze, Poland)

**Achievement of no evidence of disease activity by time interval with daclizumab HYP versus intramuscular interferon beta-1a treatment in DECIDE**

G. Giovannoni (London, United Kingdom)

## Scientific Programme

**Acute respiratory distress syndrome following treatment with alemtuzumab for relapsing multiple sclerosis**

A. Pace (Salford, United Kingdom)

**Glatiramer acetate immune modulates pathogenic B cell function and maintains clinical benefit after anti-CD20 induction therapy**

D. Häusler (Goettingen, Germany)

**Return of clinical and radiological disease activity after cessation of natalizumab in patients with relapsing remitting and secondary progressive multiple sclerosis**

U. Proschmann (Dresden, Germany)

**Therapeutic effect of SINE compounds in a preclinical model of multiple sclerosis and an in vitro screening of related viruses**

S. Tamir (Newton, United States)

**Alterations in the secretome of MSCs isolated from patients with MS are in keeping with their reduced neuroprotective potential under conditions of oxidative stress**

J. Redondo (Bristol, United Kingdom)

**Teriflunomide impacts primary microglia and astrocyte functions in vitro**

A. Edling (Framingham, United States)

**MD1003 halts axonal degeneration and locomotor disability in a model of X-linked adrenoleukodystrophy**

C. Casasnovas (L'Hospitalet de Llobregat, Spain)

**Penetration of dimethyl fumarate into cerebrospinal fluid and brain: a pharmacokinetic and tissue distribution study in monkeys**

N. Penner (Cambridge, United States)

**Association of serum 25-hydroxyvitamin D levels with disability and relapses in relapsing-remitting multiple sclerosis**

H.A. İdrisoglu (Istanbul, Turkey)

**Oral lipoic acid as a treatment for acute optic neuritis: a blinded, placebo-controlled randomized trial**

V. Yadav (Portland, United States)

**Safety and tolerability of opicinumab in relapsing multiple sclerosis: the Phase 2b SYNERGY trial**

D. Cadavid (Cambridge, United States)

**Mesenchymal stem cell Labeling for In vivo cell tracking**

S.M. Planchon (Cleveland, United States)

**Human embryonic stem cell -derived oligodendrocyte progenitor cells provide long term immune-regulation and protection in a chronic-relapsing model of multiple sclerosis**

T. Ben-Hur (Jerusalem, Israel)

**Quantifying remyelination in vivo - metabolic labeling of myelin in an animal model of multiple sclerosis**

R. Aharoni (Rehovot, Israel)

## Scientific Programme

**Efficacy and safety of alemtuzumab in patients with RRMS is durable over 10 years: follow-up from the CAMMS223 study**

K. Selmaj (Lodz, Poland)

**Alemtuzumab improves clinical outcomes over 4 years in patients with relapsing-remitting multiple sclerosis who switched from SC IFNB-1a: CARE-MS II extension study 4-year follow-up**

A. Boyko (Moscow, Russian Federation)

**Durable suppression of disease activity by alemtuzumab in the absence of continuous treatment over 6 years in patients with active relapsing-remitting multiple sclerosis and an inadequate response to prior therapy (CARE-MS II)**

C. LaGanke (Cullman, United States)

**Alemtuzumab durably suppresses disease activity over 6 years in treatment-naive patients with active relapsing-remitting multiple sclerosis in the absence of continuous treatment (CARE-MS I)**

H. Wiendl (Münster, Germany)

**Durable reduction in MRI disease activity with alemtuzumab in treatment-naive patients with active relapsing-remitting multiple sclerosis: 6-year follow-up of the CARE-MS I study**

D.L. Arnold (Montréal, Canada)

**Natalizumab, first therapy to demonstrate a significant impact on multiple sclerosis disease severity**

F. Jacques (Gatineau, Canada)

**Predictors of long-term interferon discontinuation in newly diagnosed relapsing multiple sclerosis**

M. Moccia (Napoli, Italy)

**Real world efficacy of fingolimod: experience from the Glasgow MS Centre (GMSC) in comparison with the FREEDOMS and TRANSFORMS studies**

K.J. Fitzpatrick (Glasgow, United Kingdom)

**Impact of fingolimod therapy on neutrophil counts: real world experience from the Glasgow MS Centre (GMSC)**

K.J. Fitzpatrick (Glasgow, United Kingdom)

**Determinants of treatment persistence with glatiramer acetate in the French national Copaxone registry**

C. Lebrun-Frenay (Nice, France)

**Effect of early versus delayed scIFN  $\beta$ -1a on radiological or clinical activity-free status in patients with CIS: a post-hoc analysis of REFLEXION**

M.S. Freedman (Ottawa, Canada)

**Outcomes of the TOPIC extension study of teriflunomide in patients with early multiple sclerosis: up to 7 years of clinical results**

A.E. Miller (New York, United States)

## Scientific Programme

**Benefit of long-term treatment with teriflunomide on disability outcomes: results from TEMSO and TOWER**

F. Lublin (New York, United States)

**Outcomes of the TEMSO extension study of teriflunomide: 10.5 years of clinical results**

M.S. Freedman (Ottawa, Canada)

**Alemtuzumab (Lemtrada®) in multiple sclerosis: lessons from social media in enhancing patient care**

L. Rath (Melbourne, Australia)

**Three years of clinical experience with dimethyl fumarate (DMF): data from the providence multiple sclerosis center's DMF Registry**

K.E. Smoot (Portland, United States)

**A Swedish nationwide pharmaco-epidemiological and genetic study of the long-term safety and effectiveness of natalizumab (IMSE 1)**

S. Johansson (Stockholm, Sweden)

**Lymphocyte count in peripheral blood is not associated with the level of clinical response to treatment with fingolimod**

Y.D. Fragoso (Santos, Brazil)

**A Swedish nationwide pharmaco-epidemiological and genetic study of the long-term safety and effectiveness of dimethyl fumarate (IMSE 5)**

L. Forsberg (Stockholm, Sweden)

**Adherence to fingolimod in multiple sclerosis patients taking part in a person-centred integrated care programme in Switzerland**

A. Bourdin (Lausanne, Switzerland)

**Defining non-adherence to the injectable disease-modifying therapies in multiple sclerosis**

K.A. McKay (Vancouver, Canada)

**Open-label prospective nonrandomized long-term study of interferon-beta biosimilars: efficacy of generic drugs in multiple sclerosis**

D. Kasatkin (Yaroslavl, Russian Federation)

**Long-term persistence with injectable therapy in relapsing-remitting multiple sclerosis: evaluation of no evidence of disease activity in a 10-year longitudinal multiple sclerosis cohort**

S. Ozakbas (Izmir, Turkey)

**Comparison of fingolimod and dimethyl fumarate in the treatment of multiple sclerosis: two year experience**

B.L. Vollmer (Aurora, United States)

**9% of multiple sclerosis patients taking dimethyl fumarate have a severe reduction in CD8+ T lymphocytes (CD8+ &LT; 100 mm<sup>3</sup>) but have only grade 1 lymphopenia when measured as absolute lymphocyte count**

C. Spinelli (New Orleans, United States)

## Scientific Programme

**MSFIRST - utilising a longitudinal, prospective, comparative drug safety module for use in everyday MS clinical practice to evaluate and track incidence and characteristics of safety outcomes in MS patients on therapy over the long term**

J. Haartsen (Melbourne, Australia)

**Effect of fingolimod on an animal surgical wound healing model: a non-immunosuppressive profile**

R.C. Ginestal (Madrid, Spain)

**Evaluation of switching to teriflunomide in high risk natalizumab patients**

K.R. Edwards (Latham, United States)

**Acute motor axonal neuropathy following alemtuzumab treatment in relapsing-remitting multiple sclerosis patient - a case report**

P. Hradilek (Ostrava, Czech Republic)

**Neutropenia in two MS patients treated with alemtuzumab**

M.I. Gaitán (Buenos Aires, Argentina)

**VJC seroconversion is not related to disease modifying therapy in multiple sclerosis patients: searching for a seroconverter profile**

S. Eichau (Sevilla, Spain)

**BKPyV antibody level is associated with protection against development of PML**

F. Rossi (Roma, Italy)

**Effect of extended interval dose natalizumab therapy on CD19+ and CD34+ cell mobilization from bone marrow and JC Viremia**

L. Zhovtis Ryerson (New York, United States)

**Infratentorial brain infections induced by JC virus after treatment with Natalizumab: clinical and radiological variability**

L. Kremer (Strasbourg, France)

**Cytomegalovirus reactivation during alemtuzumab treatment in a patient with multiple sclerosis**

S.F. De Mercanti (Torino, Italy)

**Pregnancy outcomes with delayed-release dimethyl fumarate: preliminary registry results**

N.J. Everage (Cambridge, United States)

**Cumulative data on pregnancy outcomes after exposure to fingolimod and in comparison with the general population**

Y. Geissbühler (Basel, Switzerland)

**Absolute lymphocyte count and lymphocyte subset profiles during long-term treatment with delayed-release dimethyl fumarate in patients with relapsing-remitting multiple sclerosis**

R.J. Fox (Cleveland, United States)

**Lymphopenia with dimethyl fumarate and fingolimod in clinical practice**

C.M. Hersh (Las Vegas, United States)

## Scientific Programme

**Alterations of serum lipid profile in multiple sclerosis patients treated with fingolimod**

S. Haars (Leipzig, Germany)

**Selection of first-line therapy in multiple sclerosis using risk-benefit decision analysis**

D. Bargiela (Boston, United States)

**Infusion-related reactions with ocrelizumab in relapsing multiple sclerosis and primary progressive multiple sclerosis**

J. de Seze (Strasbourg, France)

**The CSF JCV antibody index for diagnosis of early progressive multifocal leukoencephalopathy**

C. Warnke (Duesseldorf, Germany)

**NEDA after stratification of PML risk**

L. Romero-Pinel (L'Hospitalet de Llobregat, Spain)

**Diet composition and dimethylfumarate (DMF) side effects in relapsing-remitting multiple sclerosis (RRMS) patients: a pilot study**

M. Pugliatti (Ferrara, Italy)

**Prevalence and predictors of lymphopenia in multiple sclerosis (MS) patients treated with fingolimod (FG) or delayed-release dimethyl fumarate (DMF)**

M. Baharnoori (Brookline, United States)

**Evaluating the safety of beta-interferons in multiple sclerosis: a series of nested case-control studies**

H.J. De Jong (Vancouver, Canada)

**First dose effects of fingolimod: in depth electrocardiographic analysis of over 4.700 patients confirms first dose observation is usually uneventful**

V. Limmroth (Köln, Germany)

**Sensitivity of magnetic resonance imaging to fingolimod dosage in a cuprizone mouse model**

V. Vegh (Brisbane, Australia)

**Interferon-beta therapy in multiple sclerosis induces differential gene regulatory effects in distinct cell populations of the peripheral blood**

M. Hecker (Rostock, Germany)

**Individual response to disease modifying therapies: a global observational cohort study**

T. Kalincik (Melbourne, Australia)

**Dose-response model for B cell count reduction under ofatumumab treatment**

M. Savelieva (Basel, Switzerland)

**Effect of teriflunomide on relapse and disability worsening: an analysis of the TOWER Study with 2 years of treatment**

K. Thangavelu (Cambridge, United States)

## Scientific Programme

**Confirmation of population structure among MS subjects: an MS subset has more disease activity**

P. De Jager (Boston, United States)

**Brain volume loss correlates with long-term disability worsening in patients with MS: SIENA analysis of TEMSO MRI data**

L. Kappos (Basel, Switzerland)

**Teriflunomide is effective in reducing brain volume loss in previously treated patients: a subgroup analysis of TEMSO SIENA data**

M.S. Freedman (Ottawa, Canada)

**Clinical predictors of fingolimod response over 2-year follow-up in an Italian cohort of multiple sclerosis relapsing remitting patients**

F. Esposito (Milan, Italy)

**Utilizing brain volume loss as an additional predictor of long-term treatment outcomes: analysis of TEMSO MRI SIENA data**

M.P. Sormani (Genoa, Italy)

**Development of a sensitive outcome for economical drug screening for progressive multiple sclerosis**

P. Kosa (Bethesda, United States)

**CD56 positivity of T cells as a candidate of a predictive biomarker for relapse of multiple sclerosis under fingolimod therapy**

C. Fujii (Kyoto, Japan)

**Validation of an algorithm to detect severe MS relapses in administrative health databases**

J.J. Marriott (Winnipeg, Canada)

**Optical coherence tomography detects significant retinal atrophy in progressive MS which is modulated by disease modifying therapies**

S. Saidha (Baltimore, United States)

**Apheresis therapy in multiple sclerosis patients with histopathologically classified immunopathological patterns**

W. Brück (Göttingen, Germany)

**Anti-inflammatory disease modifying treatment does not attenuate disability progression in secondary progressive multiple sclerosis**

J. Lorscheider (Melbourne, Australia)

**Access and use of clinical services and disease modifying therapies by people with progressive multiple sclerosis in the UK**

E. Campbell (Glasgow, United Kingdom)

**Progressive multiple sclerosis: effectiveness of a medical education activity in improving the knowledge of novel approaches to treatment**

T.F. Finnegan (New York, United States)

**Fear of falling and participation following the use of functional electrical stimulation for the lower limb in people with multiple sclerosis**

T. Street (Salisbury, United Kingdom)

## Scientific Programme

**An exploratory analysis of 12- and 24-week composite confirmed disability progression in patients with primary progressive multiple sclerosis in the ORATORIO trial**

G. Giovannoni (London, United Kingdom)

**Biotin in multiple sclerosis in real world: a cohort of 50 patients**

A. Fromont (Dijon, France)

**Safety and tolerability of ALKS 8700 in relapsing-remitting multiple sclerosis: Phase 3 open-label study design (EVOLVE-MS-1)**

R.T. Naismith (Saint Louis, United States)

**Therapeutic inertia in multiple sclerosis care: lessons learned from behavioral economics**

G. Saposnik (Toronto, Canada)

**Cholecalciferol supplementation in relapsing multiple sclerosis patients treated with subcutaneous interferon beta-1a: a randomized controlled trial**

W. Camu (Montpellier, France)

**Autologous haematopoietic stem cell transplantation in multiple sclerosis: a meta-analysis**

M.P. Sormani (Genoa, Italy)

**Effects of high- and low-fat meals on the pharmacokinetics of ozanimod, a novel sphingosine 1-phosphate receptor modulator**

J.Q. Tran (Summit, United States)

**Favourable changing course of multiple sclerosis in the last 15 years: the role of neurologists**

G. Comi (Milan, Italy)

**Multiple sclerosis triggered during tocilizumab therapy. Report of a new case**

G. Cruz-Velásquez (Zaragoza, Spain)

**Immunoablation and haematopoietic stem cell transplantation completely aborts inflammation in aggressive relapsing forms of MS**

M.S. Freedman (Ottawa, Canada)

**Intermediate intensity regimen in autologous HSCT for severe multiple sclerosis: a large, single center experience**

R. Saccardi (Florence, Italy)

**Tetrahydrocannabinol + cannabidiol oromucosal spray for multiple sclerosis resistant spasticity on daily practice, new data**

P. Vermersch (Lille, France)

**Diffusion tensor imaging correlates of gait impairment in multiple sclerosis**

S. Klineova (New York, United States)

**A multicenter randomized controlled trial of two group programs in multiple sclerosis: effects on fatigue and self-efficacy**

C. Hugos (Portland, United States)

## Scientific Programme

**Evaluating the effect of patients expectations on clinical response to fampridine treatment**

F.F. Ladeira (Lisbon, Portugal)

**High dose vitamin D3 supplementation does not ameliorate depressive symptoms in relapsing remitting multiple sclerosis: results of a randomized placebo-controlled trial**

L. Rolf (Maastricht, Netherlands)

**Enhanced cognitive performance independent of depression scores in patients with multiple sclerosis treated with fampridine**

M. Fernández-Fournier (Madrid, Spain)

**Medical and surgical treatment of trigeminal neuralgia in patients with multiple sclerosis: a literature review**

J.L. Frederiksen (Copenhagen, Denmark)

**Big conductance calcium-activated potassium channel activation is a novel way to control spasticity without sedation**

D. Baker (London, United Kingdom)

**Network analysis for understanding the effect of fampridine in gait of primary progressive multiple sclerosis**

I. Pulido-Valdeolivas (Madrid, Spain)

**Effects of dual-task balance training on postural performance in patients with multiple sclerosis: a double-blind, randomized controlled trial**

S. Monjezi (Ahvaz, Iran, Islamic Republic of)

**Pain in neuromyelitis optica: characterization and its impact on quality of life: a cross-sectional study in Venezuela**

G.A. Chique-Alfonzo (Caracas, Bolivarian Republic of Venezuela)

**Improvements in quality of life over 5 years with alemtuzumab are associated with confirmed disability improvement in patients with active relapsing-remitting multiple sclerosis who had an inadequate response to prior therapy (CARE-MS II)**

R. Arroyo González (Madrid, Spain)

**A non-randomized, open label, exploratory study of dalfampridine-extended release and sexual dysfunction in women with multiple sclerosis**

L. Amezcua (Los Angeles, United States)

**Illness- and medication-perceptions are key aspects affecting health-related quality of life in patients with MS**

S. Ratzabi (Haifa, Israel)

**Prospective validation of a short version of MSQOL-54 (MSQOL-29): preliminary findings**

A. Solari (Milan, Italy)

**Social support and depression in individuals with multiple sclerosis**

M.P. Jensen (Seattle, United States)

## Scientific Programme

**Adaptation and preliminary testing of Six Neuro-QoL Item banks for use in the Swedish neuro-registries/multiple sclerosis registry (NEUROreg/MSreg)**

L. Stawiarz (Stockholm, Sweden)

**A comparison of the association between multiple sclerosis symptoms and quality of life among people with relapsing and progressive multiple sclerosis**

C. Chen (Portland, United States)

**Perception of disease severity in patients with multiple sclerosis**

I. León (Hospitalet de Llobregat, Spain)

**Long-term quality of life outcome in subjects with multiple sclerosis responding to treatment with fampridine**

F.A. Rodriguez-Leal (Dresden, Germany)

**Factors associated with acceptance to intramuscular interferon  $\beta$ -1a in patients with multiple sclerosis: results from the ADOPTe study**

C. Mekies (Toulouse, France)

**Loneliness and pessimism are independent predictors of timed 25-foot walk worsening at 5 years among ageing MS patients enrolled in the New York State Multiple Sclerosis Consortium**

B. Weinstock-Guttman (Buffalo, United States)

**Effects of high frequency repetitive transcranial magnetic stimulation on gait and balance in patients with chronic multiple sclerosis**

H.S. Shehata (Cairo, Egypt)

**Telerehabilitation in multiple sclerosis: results of a randomized, 3-arm, rater blinded, feasibility and efficacy pilot study; patient-reported outcomes report**

C. Fjeldstad (Oklahoma City, United States)

**Multiple sclerosis and diet: systematic review, internet-based survey and pilot-testing of an evidence based patient education programme**

C. Heesen (Hamburg, Germany)

**Instrumented version of the modified dynamic gait index: a pilot study**

E. Gervasoni (Milan, Italy)

**A sensor-engineered glove to quantitatively assess fine hand motor function in MS**

E. Gervasoni (Milan, Italy)

**An android application to assess attention deficits in people with Multiple Sclerosis**

A. Tacchino (Genova, Italy)

**Content and extent of upper limb rehabilitation in multiple sclerosis across Europe**

I.G. Løyning (Hakadal, Norway)

## Scientific Programme

**Determinants of discontinuation of Botulinum Toxin Type A treatment for spasticity in multiple sclerosis**

L. Castelli (Rome, Italy)

**Oculomotor re-training in people with progressive Multiple Sclerosis and cerebellar signs: A proof of concept study**

J. Marsden (Plymouth, United Kingdom)

**Effectiveness of energy conservation management on fatigue and participation in multiple sclerosis: a randomized clinical trial**

J. van Meeteren (Rotterdam, Netherlands)

**Physical behavior is associated with physical fatigue in persons with multiple sclerosis related fatigue**

J. van Meeteren (Rotterdam, Netherlands)

**Voxel-based lesion symptom mapping to explain the cognitive-posture interference phenomenon in multiple sclerosis**

S. Ruggieri (Rome, Italy)

**The positive effect of cognitive behavioral therapy for the treatment of fatigue in patients with multiple sclerosis: results of a randomized controlled trial**

L. van den Akker (Amsterdam, Netherlands)

**Changes in gait and balance in people with multiple sclerosis attending a 12-week Pilates exercise program**

A. Kalron (Herzeliya, Israel)

**Does aerobic training alleviate fatigue and improve societal participation in patients with multiple sclerosis? The TREFAMS-A multicentre randomised trial**

M. Heine (Amsterdam, Netherlands)

**Effects of normobaric hypoxic training on physical fitness and immunoregulatory functions in patients with multiple sclerosis: a pilot study**

A. Mähler (Berlin, Germany)

**Customizable exergames Nintendo Wii balance board-based for rehabilitation in multiple sclerosis**

S. Caggiari (Cagliari, Italy)

**Treadmill walking exercise training effects on processing speed and thalamic resting-state functional connectivity in multiple sclerosis: a pilot study**

B.M. Sandroff (West Orange, United States)

**Rhythmic cued motor imagery in people with multiple sclerosis: effects and mechanisms**

B. Seebacher (Eastbourne, United Kingdom)

**Objective physical activity measurement in people with multiple sclerosis: a review of the literature**

B. Casey (Limerick, Ireland)

## Scientific Programme

	Social Media Session, Hall D
<b>16:00 - 17:00</b>	<b>Burning debate: People in wheelchairs should be included in progressive MS trials</b>  This burning debate will address the topical issue of whether people in wheelchairs should be included in trials for progressive MS. Two opposing views will be put forward to spark debate about the reasons why a significant proportion of people with MS are excluded from clinical trials of disease modifying trials. Votes will be cast via twitter using #burningdebate .  <b>Chairs</b> C. Oreja-Guevara (Madrid, Spain)
<b>16:00 - 16:05</b>	<b>Introduction</b>
<b>16:05 - 16:17</b>	<b>YES</b> K. Schmierer (London, United Kingdom)
<b>16:17 - 16:29</b>	<b>NO</b> P.K. Coyle (Stony Brook, United States)
<b>16:29 - 16:54</b>	<b>Discussion</b>
<b>16:54 - 17:00</b>	<b>Summary and closing vote</b>
	Hot Topic Sessions, Hall A
<b>17:00 - 17:45</b>	<b>Hot Topic 2 Bone marrow transplantation is a justifiable treatment for active relapsing multiple sclerosis</b>  <b>Chairs</b> P.A. Muraro (London, United Kingdom) N. Scolding (Bristol, United Kingdom)
<b>17:00 - 17:15</b>	<b>Bone marrow transplantation is a justifiable treatment for active relapsing multiple sclerosis: for</b> G.L. Mancardi (Genoa, Italy)
<b>17:15 - 17:30</b>	<b>Bone marrow transplantation is a justifiable treatment for active relapsing remitting multiple sclerosis: against</b> J.A. Cohen (Cleveland, United States)
<b>17:30 - 17:40</b>	<b>Clinical experience in aggressive multiple sclerosis treatment with autologous haematopoietic stem cell transplantation</b> M. Smilowski (Katowice, Poland)
<b>17:40 - 17:45</b>	<b>Summary</b> P.A. Muraro (London, United Kingdom)

## Scientific Programme

	Hot Topic Sessions, Hall B
<b>17:00 - 17:45</b>	<b>Hot Topic 3 Risk factors for progression of MS</b>
	<b>Chairs</b> H. Tremlett (Vancouver, Canada) J.-i. Kira (Fukuoka City, Japan)
<b>17:00 - 17:15</b>	<b>Genetic factors associated with progression of MS</b> S. Sawcer (Cambridge, United Kingdom)
<b>17:15 - 17:30</b>	<b>Environmental factors associated with progression of MS</b> A. Ascherio (Boston, United States)
<b>17:30 - 17:40</b>	<b>Long-term disability trajectories in primary progressive MS patients - a latent class growth analysis</b> A. Signori (Genova, Italy)
<b>17:40 - 17:45</b>	<b>Summary</b> H. Tremlett (Vancouver, Canada)
	Hot Topic Sessions, Hall C
<b>17:00 - 17:45</b>	<b>Hot Topic 4 Biomarkers associated with the development of PML</b>
	<b>Chairs</b> D. Brassat (Toulouse, France) M. Comabella (Barcelona, Spain)
<b>17:00 - 17:15</b>	<b>PML pathogenesis</b> I. Koralnik (Chicago, United States)
<b>17:15 - 17:30</b>	<b>Biomarkers associated with the development of PML: immunological markers</b> H. Wiendl (Münster, Germany)
<b>17:30 - 17:45</b>	<b>Genomics biomarkers associated with the development of PML</b> D. Brassat (Toulouse, France)
	Satellite Symposia, Hall B
<b>18:00 - 19:00</b>	<b>Satellite Symposium - Multiple disciplines, common goals: Just a minute! Challenge the expert panel</b>
	Supported by Teva
	<b>Chairs</b> P. Vermersch (Lille, France)
<b>18:00 - 18:05</b>	<b>Welcome: multiple disciplines, common goals</b> P. Vermersch (Lille, France)

## Scientific Programme

- 18:05 - 18:20**                      **Optimising management for family planning: new strategies for an ongoing challenge**  
K. Hellwig (Bochum, Germany)  
S. Verlohren (Berlin, Germany)
- 18:20 - 18:30**                      **Just a minute! Challenge the expert panel**  
P. Vermersch (Lille, France)  
D. Centonze (Rome, Italy)  
P.K. Coyle (Stony Brook, United States)  
K. Hellwig (Bochum, Germany)  
J.-L. Murk (Utrecht, Netherlands)  
S. Verlohren (Berlin, Germany)  
A. Joosten (Rotterdam, Netherlands)
- 18:30 - 18:45**                      **Targeting the immune system in MS: a microbiologist's view**  
J.-L. Murk (Utrecht, Netherlands)
- 18:45 - 18:55**                      **Just a minute! Challenge the expert panel**  
P. Vermersch (Lille, France)  
D. Centonze (Rome, Italy)  
P.K. Coyle (Stony Brook, United States)  
K. Hellwig (Bochum, Germany)  
J.-L. Murk (Utrecht, Netherlands)  
S. Verlohren (Berlin, Germany)  
A. Joosten (Rotterdam, Netherlands)
- 18:55 - 19:00**                      **Closing remarks**  
P. Vermersch (Lille, France)

## Scientific Programme

### Friday, 16 September 2016

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<b>08:00 - 09:00</b>	Satellite Symposia, Hall B <b>Satellite Symposium - The evolving management of relapsing MS</b> Supported by Celgene <b>Chairs</b> E. Havrdová (Prague, Czech Republic) G. Comi (Milan, Italy)
<b>08:00 - 08:08</b>	<b>Opening and introductions</b> E. Havrdová (Prague, Czech Republic)
<b>08:08 - 08:20</b>	<b>Current treatment targets</b> G. Comi (Milan, Italy)
<b>08:20 - 08:35</b>	<b>Unmet patient needs</b> E. Havrdová (Prague, Czech Republic)
<b>08:35 - 08:50</b>	<b>Future therapeutic options</b> J.A. Cohen (Cleveland, United States)
<b>08:50 - 08:55</b>	<b>Panel Discussion</b>
<b>08:55 - 09:00</b>	<b>Meeting close</b> G. Comi (Milan, Italy)
<b>09:15 - 10:15</b>	Free Communications, Hall A <b>Free Communications 1</b> <b>Chairs</b> K. Selmaj (Lodz, Poland) R. Gold (Bochum, Germany)
<b>09:15 - 09:27</b>	<b>Durable efficacy of cladribine tablets in patients with multiple sclerosis: analysis of relapse rates and relapse-free patients in the CLARITY and CLARITY Extension studies</b> G. Giovannoni (London, United Kingdom)
<b>09:27 - 09:39</b>	<b>Rituximab in multiple sclerosis; data from the swedish MS registry</b> F. Piehl (Stockholm, Sweden)
<b>09:39 - 09:51</b>	<b>High dose cholecalciferol (vitamin D3) oil as add-on therapy in subjects with relapsing-remitting multiple sclerosis receiving subcutaneous interferon <math>\beta</math>-1a</b> R. Hupperts (Maastricht, Netherlands)

## Scientific Programme

- 09:51 - 10:03**      **Evaluation of no evidence of progression using composite disability outcome measures, in patients with primary progressive multiple sclerosis in the ORATORIO trial**  
X. Montalban (Barcelona, Spain)
- 10:03 - 10:15**      **Autoimmunity in patients treated With Alemtuzumab for relapsing-remitting multiple sclerosis: 5-Year follow-up of the CARE-MS studies**  
P. Vermersch (Lille, France)
- Free Communications, Hall B
- 09:15 - 10:15**      **Free Communications 2**
- Chairs**  
N. Robertson (Cardiff, United Kingdom)  
E. Havrdová (Prague, Czech Republic)
- 09:15 - 09:27**      **Subclinical concordance rate in monozygotic twins clinically discordant for multiple sclerosis**  
L.A. Gerdes (Munich, Germany)
- 09:27 - 09:39**      **Evaluation of local ancestry differences in multiple sclerosis among US minority populations**  
A. Beecham (Coral Gables, United States)
- 09:39 - 09:51**      **Evolving dark band on T2\*-weighted images is characteristic of PML and indicates iron deposition - a combined MRI, XRF & histopathology study**  
V.V. Sethi (Bethesda, United States)
- 09:51 - 10:03**      **Risk of false negative JC virus PCR in CSF of natalizumab-associated PML patients reflects low PML lesion volume**  
M.T. Wijburg (Amsterdam, Netherlands)
- 10:03 - 10:15**      **To do or not to do? Plasma exchange and steroids in progressive multifocal leukoencephalopathy management**  
C. Scarpazza (Brescia, Italy)
- Free Communications, Hall C
- 09:15 - 10:15**      **Free Communications 3**
- Chairs**  
A.J. Coles (Cambridge, United Kingdom)  
J. Hillert (Stockholm, Sweden)
- 09:15 - 09:27**      **Maintaining paid work in MS**  
C.R. Wicks (Leeds, United Kingdom)
- 09:27 - 09:39**      **Caring for and caring about people with severe MS**  
A. Solari (Milan, Italy)

## Scientific Programme

- 09:39 - 09:51**      **Social Cognition is associated to selective cognitive impairment and brain atrophy in progressive multiple sclerosis**  
E. Ciampi (Barcelona, Spain)
- 09:51 - 10:03**      **Medication adherence in paediatric MS: barriers and facilitators**  
S.A. Grover (Toronto, Canada)
- 10:03 - 10:15**      **Effect of smoking, a NAT1 genetic variant and HLA genes on disease activity in MS patients before and during interferon-beta treatment**  
E.R. Petersen (Copenhagen, Denmark)
- 09:15 - 10:15**      Free Communications, Hall D  
**Free Communications 4**  
**Chairs**  
A. Siva (Istanbul, Turkey)  
K. Gross-Paju (Tallinn, Estonia)
- 09:15 - 09:27**      **Gut dysbiosis is a feature of MS and it is characterized by bacteria able to regulate lymphocyte differentiation in vitro**  
S.E. Baranzini (San Francisco, United States)
- 09:27 - 09:39**      **Mucosal -associated invariant T cells regulate immune response in multiple sclerosis**  
J. Correale (Buenos Aires, Argentina)
- 09:39 - 09:51**      **Regulatory B cell induction by the gut microbiome protects against CNS inflammation and demyelination**  
L. Kasper (Hanover, United States)
- 09:51 - 10:03**      **T-cells recovered from chronic active multiple sclerosis lesions are directed to Epstein-Barr virus, but not disease-associated autoantigens**  
G.P. van Nierop (Rotterdam, Netherlands)
- 10:03 - 10:15**      **Early development of a novel serum based test to measure multiple sclerosis disease activity**  
R.C. Axtell (Oklahoma City, United States)
- 10:45 - 12:15**      Parallel Sessions, Hall A  
**Parallel Session 8 Long term outcome after presentation with a clinically isolated syndrome**  
**Chairs**  
N. Evangelou (Nottingham, United Kingdom)  
A. Traboulsee (Vancouver, Canada)
- 10:45 - 11:05**      **Imaging markers of prognosis**  
O. Ciccarelli (London, United Kingdom)

## Scientific Programme

- 11:05 - 11:25** **Long term outcome after presentation with a clinically isolated syndrome: evidence for therapeutic modulation**  
M. Tintoré (Barcelona, Spain)
- 11:25 - 11:37** **Early MRI predictors of secondary progressive multiple sclerosis: a 15 year follow-up study of patients with clinically isolated syndrome**  
W.J. Brownlee (London, United Kingdom)
- 11:37 - 11:49** **Early disease modifying treatment delays disability accumulation in patients with pediatric onset clinically isolated syndrome suggestive of multiple sclerosis**  
P. Iaffaldano (Bari, Italy)
- 11:49 - 12:01** **Barcelona dynamic model for predicting prognosis in CIS patients incorporating lesion topography and activity**  
M. Tintoré (Barcelona, Spain)
- 12:01 - 12:13** **Baseline and on-study variables that predict disease activity in patients with CIS treated with interferon beta-1b in the BENEFIT 11 trial**  
L. Kappos (Basel, Switzerland)
- Parallel Sessions, Hall B
- 10:45 - 12:15** **Parallel Session 9 Remyelination: mechanisms and therapeutic approaches**
- Chairs**  
S. Chandran (Edinburgh, United Kingdom)  
S. Goldman (Rochester, United States)
- 10:45 - 11:05** **Myelination: mechanisms and function in healthy CNS**  
K.-A. Nave (Göttingen, Germany)
- 11:05 - 11:25** **Remyelination in multiple sclerosis: therapeutic approaches**  
C. Lubetzki (Paris, France)
- 11:25 - 11:37** **Efficacy analysis of opicinumab in relapsing multiple sclerosis: the Phase 2b SYNERGY trial**  
D. Cadavid (Cambridge, United States)
- 11:37 - 11:49** **The RXR nuclear receptor agonist IRX4204 promotes myelin repair in vivo**  
M.E. Sanders (Santa Ana, United States)
- 11:49 - 12:01** **Oligodendroglial damage and remyelination in paediatric multiple sclerosis lesions**  
S. Pfeifenbring (Göttingen, Germany)
- 12:01 - 12:13** **Chi3l3 induces oligodendrocyte regeneration in a model of multiple sclerosis**  
S.C. Starossom (Berlin, Germany)

## Scientific Programme

	Parallel Sessions, Hall C
<b>10:45 - 12:15</b>	<b>Parallel Session 10 Comorbid diseases in people with MS</b>
	<b>Chairs</b> B. Uitdehaag (Amsterdam, Netherlands) I. Mylonas (Thessaloniki, Greece)
<b>10:45 - 11:05</b>	<b>Non-vascular comorbidity in multiple sclerosis</b> P.S. Sorensen (Copenhagen, Denmark)
<b>11:05 - 11:25</b>	<b>Vascular disease comorbidity in MS</b> R.A. Marrie (Winnipeg, Canada)
<b>11:25 - 11:37</b>	<b>Inverse comorbidity in multiple sclerosis. Findings in a complete nationwide cohort</b> A. Thormann (Copenhagen, Denmark)
<b>11:37 - 11:49</b>	<b>Serum levels of 25-hydroxyvitamin D and risk of multiple sclerosis among women in the Finnish Maternity Cohort</b> A. Ascherio (Boston, United States)
<b>11:49 - 12:01</b>	<b>The impact of cardiovascular comorbidities on the temporal evolution of brain volume and lesion load in early multiple sclerosis</b> A. Pichler (Graz, Austria)
<b>12:01 - 12:13</b>	<b>Ovarian age is associated with gray matter volumes and disability in women with MS independent of chronological age and disease duration</b> J.S. Graves (San Francisco, United States)
	Parallel Sessions, Hall D
<b>10:45 - 12:15</b>	<b>RIMS Parallel Session 3 Neurobiology and rehabilitation</b>
	<b>Chairs</b> G. Comi (Milan, Italy) J. Sastre-Garriga (Barcelona, Spain)
<b>10:45 - 11:05</b>	<b>Neural and behavioral correlates of cognitive and affective symptom rehabilitation in multiple sclerosis</b> R.S. Prakash (Columbus, United States)
<b>11:05 - 11:25</b>	<b>Functional and structural brain plasticity enhanced by motor and cognitive rehabilitation in multiple sclerosis</b> L. Prosperini (Rome, Italy)
<b>11:25 - 11:40</b>	<b>Action observation therapy modifies brain functional reorganization in MS patients with right upper limb motor deficits</b> M.A. Rocca (Milan, Italy)
<b>11:40 - 11:55</b>	<b>Profusely increased cortical grey, subcortical grey and white matter structural neuroplasticity with enduring real-world motor improvement following CI therapy for MS: results from a randomised controlled trial</b> V.W. Mark (Birmingham, United States)



## Scientific Programme

- 15:04 - 15:16**                      **Therapeutic lag: is treatment effect delayed in progressive MS?**  
M.P. Sormani (Genoa, Italy)
- 15:16 - 15:28**                      **To switch therapies in RRMS: why and when? A real-life multicentre study**  
M. Clerico (Torino, Italy)
- 14:00 - 15:30**                      Parallel Sessions, Hall B  
**Parallel Session 12 New directions in progressive MS research**
- Chairs**  
F. Lublin (New York, United States)  
G. Comi (Milan, Italy)
- 14:00 - 14:20**                      **The evolving understanding of pathogenic mechanisms of progressive MS**  
C. Stadelmann (Göttingen, Germany)
- 14:20 - 14:40**                      **Unblocking the bottleneck - better trial design in progressive multiple sclerosis**  
J. Chataway (London, United Kingdom)
- 14:40 - 14:52**                      **Molecular-based diagnosis of multiple sclerosis and its progressive stage**  
P. Kosa (Bethesda, United States)
- 14:52 - 15:04**                      **A new rodent model of progressive demyelination and neurodegeneration mimicking progressive MS**  
S. Nessler (Göttingen, Germany)
- 15:04 - 15:16**                      **Synaptic loss in the MS spinal cord: a key driver of disease progression?**  
N. Petrova (London, United Kingdom)
- 15:16 - 15:28**                      **Lipoic acid for neuroprotection in secondary progressive multiple sclerosis: results of a randomised placebo-controlled pilot trial**  
R.I. Spain (Portland, United States)
- 14:00 - 15:30**                      Parallel Sessions, Hall C  
**Parallel Session 13 Cognition in MS**
- Chairs**  
A. Feinstein (Toronto, Canada)  
I.-K. Penner (Düsseldorf, Germany)
- 14:00 - 14:20**                      **Mechanisms of cognitive impairment: insights from imaging**  
M.M. Schoonheim (Amsterdam, Netherlands)
- 14:20 - 14:40**                      **Cognitive rehabilitation**  
M.P. Amato (Florence, Italy)

## Scientific Programme

- 14:40 - 14:52**      **Grey and white matter pathology in multiple sclerosis: separate effects on cognition?**  
A.J. Eijlers (Amsterdam, Netherlands)
- 14:52 - 15:04**      **Effect of high-dose simvastatin on cognition in secondary progressive multiple sclerosis (MS-STAT cognitive): a randomised, placebo-controlled, Phase 2 trial**  
J. Chataway (London, United Kingdom)
- 15:04 - 15:16**      **Correlates of cognitive impairment in multiple sclerosis: do environmental and lifestyle risk factors for the disease matter?**  
I. Righini (Florence, Italy)
- 15:16 - 15:28**      **Assessment of cognitive status, physical disability and progressive disease in multiple sclerosis (MS): validation of a comprehensive telehealth approach for clinical research and translation to care**  
L.F. Barcellos (Berkeley, United States)
- 15:30 - 17:00**      Poster Sessions, Poster Exhibition  
**Poster Session 2**
- Multiple sclerosis mimickers on initial presentation: frequency, type and predictors**  
B. Yamout (Beirut, Lebanon)
- Periventricular lesions and multiple sclerosis diagnostic criteria in people with clinically isolated syndromes**  
W.J. Brownlee (London, United Kingdom)
- Individual prediction of clinically definite MS in patients presenting with clinically isolated syndrome using machine learning**  
V. Wottschel (Amsterdam, Netherlands)
- Optic nerve MRI in patients with first-ever optic neuritis**  
B.-N. Yoon (Incheon, Korea, Republic of)
- Subclinical disease processes detected by fullfield and multifocal visual evoked potentials in NMO spectrum disorders**  
M. Ringelstein (Düsseldorf, Germany)
- Assessment of 2015 neuromyelitis optica criteria in rouen university hospital**  
L. Fechtenbaum (Rouen, France)
- Frequency of AQP4-Ab in NMO and NMO-spectrum disorders**  
A. Vorobyeva (Moscow, Russian Federation)
- MRI evaluation of the “central vein sign” in brain white matter lesions of multiple sclerosis and systemic autoimmune diseases**  
L. Vuolo (Florence, Italy)
- Central nervous system demyelination associated to Zika virus outbreaks**  
O.J.M. Nascimento (Niterói, Brazil)

## Scientific Programme

**Asymptomatic acute NMOSD-typical brain lesions at an acute attack of optic neuritis or myelitis**

S.-H. Kim (Goyang, Korea, Republic of)

**MOG-antibody- related disorders cohort description: common features and uncommon presentations**

A. Cobo-Calvo (Lyon, France)

**Outcomes of pregnancy in neuromyelitis optica patients: turkish multicenter study data**

A. Altintas (Istanbul, Turkey)

**Efficacy of immunotherapies and predictors of therapy response in neuromyelitis optica spectrum disorders: analysis of 397 treatment years from 150 patients**

J.-P. Stellmann (Hamburg, Germany)

**MOG-IgG in NMO and related disorders: a multicenter study. part 1: frequency, syndrome specificity, influence of disease activity, long-term course, association with AQP4-IgG, and origin**

S. Jarius (Heidelberg, Germany)

**Short delay to initiate plasma exchange is the strongest predictor of outcome in attacks of neuromyelitis optica spectrum disorders**

M. Bonnan (Pau, France)

**Executive function in NMOSD: the relationship with fatigue, anxiety and depression**

A. Combes (Vancouver, Canada)

**Radiographic and clinical features of neuromyelitis optica spectrum disorder: A retrospective study within the Columbia university medical center patient population**

C.-Y. Guo (New York, United States)

**MOG-IgG in NMO and related disorders: a multicenter study. Part 2: Epidemiology, clinical presentation, radiological and laboratory features, treatment, and long-term outcome**

S. Jarius (Heidelberg, Germany)

**Clinical and radiological features of 12 patients with pseudotumoral demyelinating lesions**

P. Sánchez (Madrid, Spain)

**Multiple sclerosis and NMO spectrum disorder association in sisters**

S.A. Hatteb (Tizi Ouzou, Algeria)

**MOG-IgG in NMO and related disorders: a multicenter study. Part 3: MOG-IgG-associated brainstem encephalitis**

S. Jarius (Heidelberg, Germany)

**Psychiatric comorbidities and suicide attempt in Neuromyelitis optica spectrum disorders in Argentina**

V. Fernández (Buenos Aires, Argentina)

## Scientific Programme

**Neuromyelitis Optica Spectrum Disorders in Argentinian patients: A hospital based study**

V. Fernández (Buenos Aires, Argentina)

**Structural connectivity abnormalities underlying cognitive impairment in pediatric multiple sclerosis**

E. De Meo (Milan, Italy)

**Long-term follow-up of an Italian pediatric MS population treated with first-line agents: a multicentre, retrospective, cohort study**

A. Ghezzi (Gallarate, Italy)

**Cognitive impairment and lower cognitive reserve increase the risk of unemployment in patients with pediatric onset multiple sclerosis**

B. Hakiki (Florence, Italy)

**Differential MRI lesion features in pediatric NMO and pediatric MS**

R. Ameli (Boston, United States)

**The Future study- Quality of liFe in adolescent sUBjectS affected by mUltiple sclerosis treated with immunomodulatory agEnt using self-injecting device. A multicenter, observational, prospective study**

A. Ghezzi (Gallarate, Italy)

**Long term outcome of paediatric onset multiple sclerosis: comparison with adult onset**

T. Armangue (Barcelona, Spain)

**Predicting paediatric multiple sclerosis in 'MRI negative' patients: bands do aid**

Y.Y.M. Wong (Rotterdam, Netherlands)

**Interaction of secondhand tobacco smoke exposure and HLA-DRB1\*15 increases the odds for pediatric multiple sclerosis**

A.M. Lavery (Philadelphia, United States)

**Immunoglobulin free light chain analysis aids the diagnosis of pediatric MS: a pilot study**

E. Ganelin-Cohen (Petach Tikva, Israel)

**Development of a standardized approach to the care of paediatric multiple sclerosis in Canada: Implementation of a national consensus guideline of management strategies including an online pediatric multiple sclerosis care decision support tool**

S. Venkateswaran (Ottawa, Canada)

**Vitamin D genetic risk score is strongly associated with vitamin D levels and relapse rate in pediatric MS patients**

J.S. Graves (San Francisco, United States)

**Visual perception tasks in paediatric multiple sclerosis patients - a pilot study**

K. Karoscik (Philadelphia, United States)

## Scientific Programme

**Low-contrast letter acuity perception matures with age in healthy children**

A.T. Waldman (Bryn Mawr, United States)

**Paediatric acute disseminated encephalomyelitis followed recurrent optic neuritis (ADEM-ON): disease course and treatment**

Y.Y.M. Wong (Rotterdam, Netherlands)

**High levels of the T-cell activation marker sCD27 in CSF are associated with MS in childhood acquired demyelinating syndromes**

Y.Y.M. Wong (Rotterdam, Netherlands)

**Brain reserve and age of MS diagnosis: larger maximal lifetime brain growth is linked to later diagnosis**

J.F. Sumowski (New York, United States)

**Rethinking the importance of paroxysmal and unusual symptoms as first clinical manifestation of multiple sclerosis: they do matter!**

G. Bsteh (Innsbruck, Austria)

**More severe disability progression in north africans with multiple sclerosis**

Y. Sidhom (Paris, France)

**Brain atrophy 15 years after CIS: baseline and follow-up clinico-radiological correlation**

À. Vidal-Jordana (Barcelona, Spain)

**Clinical worsening in subjects with no MRI evidence of disease activity**

D.S. Conway (Cleveland, United States)

**Leveraging patient-reported outcomes to assess new neurological symptoms in a prospective cohort study of individuals at risk for multiple sclerosis**

R. Bove (Brookline, United States)

**Benign multiple sclerosis in the era of disease modifying therapies**

C. Diaz-Cruz (Boston, United States)

**Early MS patients meeting NEDA show no significant gray matter decline**

U. Kaunzner (New York, United States)

**A 10-year study of predictors for employment status in people with multiple sclerosis**

M. Forslin (Huddinge, Sweden)

**Clinical characterization of patients with CNS demyelination among the muslims arabs population in Israel**

L. Brill (Jerusalem, Israel)

**The influence of coping on long-term employment in multiple sclerosis - a prospective study**

N. Grytten (Bergen, Norway)

## Scientific Programme

**Multiple sclerosis patients perceive their illness different than neurologists**

M. Kurtuncu (Istanbul, Turkey)

**MS differences are observed by place of birth and immigration between mexican american and mxican populations: a within ethnic-group analysis**

L. Amezcua (Los Angeles, United States)

**Adolescent exposure to passive smoking is associated with an increased risk of multiple sclerosis**

D.B. Oturai (Copenhagen, Denmark)

**Alcohol consumption in adolescence is associated with a lower risk of developing multiple sclerosis in Danish women**

C. Andersen (Copenhagen, Denmark)

**Applying the revised clinical course definitions to describe the phenotype of patients from the Swedish multiple sclerosis register**

A. Manouchehrinia (Stockholm, Sweden)

**Rates of pregnancy among women with multiple sclerosis over time by age, region, and payer type: a US retrospective claims database analysis**

M.K. Houtchens (Brookline, United States)

**Identification of coping strategies in Multiple Sclerosis**

E. James (London, United Kingdom)

**Psychological distress in Multiple Sclerosis and its correlation with coping strategies**

E. James (London, United Kingdom)

**The use of prescription medication by individuals with multiple sclerosis (MS): A population-based linkage study**

L.W. Svenson (Edmonton, Canada)

**Differential androgenic effects on inflammatory and degenerative processes in neuroinflammation**

C. David (Bochum, Germany)

**Effect of combined oral hormonal contraceptives to predict a benign course of multiple sclerosis**

R. Hernandez Clares (Murcia, Spain)

**Menarche and pregnancies are not related with MS activity or long term prognosis**

M.I. Zuluaga (Barcelona, Spain)

**A review of observational studies of women with MS and pregnancy**

M.K. Houtchens (Brookline, United States)

**Disease activity during pregnancy and pregnancy outcomes in patients with multiple sclerosis (MS) treated with alemtuzumab - A case series from the German MS and pregnancy registry -**

K. Gerbershagen (Cologne, Germany)

## Scientific Programme

**PREG-MS: New England Multiple Sclerosis pregnancy prospective cohort study**

T.D. Mahlanza (Brookline, United States)

**Pregnancy outcomes of women with MS in a large US claims database**

M.K. Houtchens (Brookline, United States)

**Levels of serum anti-Müllerian hormone in women with early stage of relapsing-remitting multiple sclerosis**

M. Svobodova (Brno, Czech Republic)

**Multiple sclerosis and cognitive function: the influence of change in depression and subjective cognitive fatigue on change in cognitive function in people with multiple sclerosis**

D. Golan (Haifa, Israel)

**Multiple sclerosis and cognitive function: evolution of cognitive function over time in people with multiple sclerosis**

D. Golan (Haifa, Israel)

**Prevalence of periodic limb movements during sleep among multiple sclerosis patients: potentially beneficial effect of baclofen**

P. Repovic (Seattle, United States)

**Distinct patterns of fatigue and sleep dysfunction by MS phenotype and disability level**

R.J. Mills (Preston, United Kingdom)

**Dynamic mobility deficits in people with multiple sclerosis: a systematic review and meta-analysis**

L. Comber (Limerick, Ireland)

**Cognition, fatigue and health-related quality of life in patients with multiple sclerosis: results from a european-wide study**

G. Kobelt (Mulhouse, France)

**Influence of cognitive impairment and depression on cortical thinning in patients with multiple sclerosis**

L. Cacciaguerra (Milan, Italy)

**Prospective evaluation of movement disorders in early multiple sclerosis and other CNS demyelinating diseases**

H. Abboud (Cleveland, United States)

**The CIRCLES program: accelerating solutions to neuromyelitis optica spectrum disorder**

L.J. Cook (Salt Lake City, United States)

**oculomotor synkinesis in multiple sclerosis**

G. Castelnovo (Nimes, France)

**Hemifacial spasm and continuous facial myokymia in Multiple Sclerosis: A descriptive study on clinical features and treatment outcomes**

I.V. Marin Collazo (Rochester, United States)

## Scientific Programme

**Meige syndrom as a first relapse of multiplesclerosis**

S.A. Hatteb (Tizi Ouzou, Algeria)

**Cognitive impairment of Chinese patients with multiple sclerosis and neuromyelitis optica**

K.H. Chan (Hong Kong, Hong Kong)

**Dual-tasking in multiple sclerosis - evidence for lower response selection capacities**

T. Ziemssen (Dresden, Germany)

**Video-rating to quantify limb ataxia in multiple sclerosis**

M. D'Souza (Basel, Switzerland)

**Effect of transdermal application of myelin peptides on MSFC in MS patients**

A. Walczak (Lodz, Poland)

**Novel computer-based testing shows cognitive dysfunction in patients with MS**

A.D. Smith III (Rochester, United States)

**Emulating neurologists' scoring of motor dysfunction with 3D depth sensing and machine learning**

M. D'Souza (Basel, Switzerland)

**How to assess the upper limb function in persons with multiple sclerosis: a european RIMS multicenter study investigating convergent validity and floor/ceiling effects of measures at different ICF Levels**

I. Lamers (Hasselt, Belgium)

**The impact of visible and invisible symptoms on employment status and work and social functioning in Multiple Sclerosis**

J. Frau (Cagliari, Italy)

**Multiple Sclerosis and PDDS: a true walking scale with no brains**

M. Gudesblatt (Patchogue, United States)

**Hand motor performance as a new quantitative clinical endpoint in MS: longitudinal evaluation in patients with CIS and correlation with accumulation of disability and tissue integrity at MRI**

L. Bonzano (Genoa, Italy)

**Multiple sclerosis and cognitive testing: the relationship between traditional measures and novel computerized analytics - a preliminary analysis**

M. Gudesblatt (Patchogue, United States)

**Exploration and verification of a patient-powered research network to provide patient insights in multiple sclerosis**

P. Wicks (Cambridge, United States)

**Implications for clinical practice of employing MRI to detect ongoing disease activity in patients with non-symptomatic relapsing-remitting multiple sclerosis who are receiving therapy**

N. Adlard (Camberley, United Kingdom)

## Scientific Programme

**BICAMS underestimates verbal memory impairment in MS patients: we propose a simple solution**

J.F. Sumowski (New York, United States)

**Modification of the Tardieu scale to measure lower limb spasticity in people with multiple sclerosis**

M. Liddicut (London, United Kingdom)

**The clinical role of cortical lesions as a predicting factor for cognitive impairment in multiple sclerosis**

E. Curti (Parma, Italy)

**Optic nerve ultrasonography in multiples sclerosis**

S. Pérez-Sánchez (Seville, Spain)

**What are the optimal walking tests to assess disability progression?**

S. Piérard (Liège, Belgium)

**Towards a Tele-MSDS: an iterative method to assess the MS patient remotely**

R. Bove (Brookline, United States)

**Predicting conversion to secondary progressive multiple sclerosis using a clinical decision tree**

A. Manouchehrinia (Stockholm, Sweden)

**Can mean platelet volume predict the risk for atherosclerosis in RRMS patients?**

B. Yuksel (Antalya, Turkey)

**OPTIMISE: User-guided solutions for harmonized clinical and patient-centred data capture**

M. Yong (London, United Kingdom)

**Is Multiple Sclerosis a risk factor for atherosclerosis?**

B. Yuksel (Antalya, Turkey)

**Increased multiple sclerosis impact scale-29 score is associated with reduced survival in multiple sclerosis**

A. Wallace (London, United Kingdom)

**Paced Auditory Serial Addition Test (PASAT 3") as a quantitative measure of cognitive fatigue in patients with Multiple Sclerosis**

Y. Higuera (Madrid, Spain)

**Assessment of brain atrophy in multiple sclerosis patients with fat-suppressed T1 weighted and FLAIR subtracted images utilising Comparative Brain Imaging software**

L. Wolansky (Cleveland, United States)

**Outcome measures for clinical trials on spasticity: preliminary recommendations from the Italian MS Spasticity Consensus Task Force**

L. Leocani (Milan, Italy)

## Scientific Programme

**Compressive pain: A new predictor of myelitis in Neuromyelitis optica (NMO)?**

T. Grippe (Brasilia, Brazil)

**Responsiveness of laboratory- and clinically-based measures of postural performance following balance rehabilitation in patients with multiple sclerosis**

S. Monjezi (Ahvaz, Iran, Islamic Republic of)

**Increasing rates of employment in the Australian MS longitudinal study**

I. van der Mei (Hobart, Australia)

**Inability to work and need for social and family support drive costs in multiple sclerosis**

G. Kobelt (Mulhouse, France)

**Predictive validity of the MS work instability scale**

C.R. Wicks (Leeds, United Kingdom)

**Multiple sclerosis and disease modifying therapies:if you prescribe it, will they take it? -a population analysis of predicted self-administration of medication adherence behavior**

M. Gudesblatt (Patchogue, United States)

**Income among multiple sclerosis patients with different disease phenotypes**

A. Kavaliunas (Stockholm, Sweden)

**Differences in employment of people with MS across Europe**

T. Meißner (Göttingen, Germany)

**The best clinical correlates of employment status in patients with multiple sclerosis**

B. Benova (Prague, Czech Republic)

**Evaluating the increase in the cost of Multiple Sclerosis drugs in the United States between 2010-2015: Market price vs inflation based analysis**

B.L. Vollmer (Aurora, United States)

**The impact of patient out-of-pocket costs and satisfaction with therapy on adherence to disease-modifying drugs in patients with multiple sclerosis**

L. Mayer (Round Rock, United States)

**Poor visual functioning and quality of life in multiple sclerosis are associated with retinal atrophy**

L.J. Balk (Amsterdam, Netherlands)

**Atypical immune-mediated optic neuritis at onset: antibodies, differential diagnoses and prognoses**

E.G. Carnero Contentti (Buenos Aires, Argentina)

**Visual performance in patients with neuromyelitis optica correlates with anti- aquaporin-4 antibody level**

M. Gurevich (Ramat-Gan, Israel)

## Scientific Programme

**The role of multifocal visual evoked potentials in understanding disability in multiple sclerosis**

E.H. Martinez-Lapiscina (Barcelona, Spain)

**Longitudinal assessment of retinal integrity in multiple sclerosis using 3D OCT imaging and intra-retinal layer segmentation**

A. Droby (Mainz, Germany)

**Retinal thickness and visual disability in patients with multiple sclerosis and disease-free controls with myopia**

R.C. Nolan (New York, United States)

**Changes in oxygen saturation and the retinal nerve fiber layer in patients with optic neuritis - a pilot study**

T. Svrčinová (Olomouc, Czech Republic)

**Descriptive study of a series of optic neuropathies at the moment of diagnosis and predictive factors of its evolution to Multiple Sclerosis**

E. García Molina (Murcia, Spain)

**Pathological heterogeneity in the multiple sclerosis post mortem cohort of the Netherlands brain bank relates to clinical course and gender**

N.L. Fransen (Amsterdam, Netherlands)

**Significant meningeal inflammation and cortical neurodegeneration in a post-mortem cohort of short disease duration multiple sclerosis**

O.W. Howell (Swansea, United Kingdom)

**The influence of HLA-DRB1\*15 on motor cortical neurodegeneration in multiple sclerosis**

R.L. Yates (Oxford, United Kingdom)

**Expression of bone morphogenetic proteins in the central nervous system lesions of multiple sclerosis**

C. Costa (Barcelona, Spain)

**CSF contents of IL-17 predicts disability progression and neurodegeneration in relapsing remitting Multiple Sclerosis**

L. Brambilla (Milan, Italy)

**IL-10 in multiple sclerosis: unexpected excitotoxic effects and clinical implications**

J. Perugini (Milan, Italy)

**Signature of neurodegeneration due to primary cytodegeneration and adaptive immune responses**

R. Haag (Munich, Germany)

**At clinical onset CXCL13 identifies MS patients with higher intrathecal IgG production and cortical atrophy**

M. Puthenparampil (Padua, Italy)

**Bone morphogenetic protein signaling as a potential therapeutic target for Multiple Sclerosis**

H. Eixarch (Barcelona, Spain)

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**The genetic multiple sclerosis (MS) risk variant rs7665090-G enhances NF- $\kappa$ B signaling responses in astrocytes**

D. Pitt (New Haven, United States)

**Investigating the role of astrocytes' anti-excitotoxicity potential for neuronal damage formation in experimental autoimmune encephalomyelitis - an in vivo two-photon imaging approach**

V. Siffrin (Berlin, Germany)

**The blood meningeal barrier orchestrates the immune response in multiple sclerosis**

J. Alvarez (Philadelphia, United States)

**In vivo monitoring of acidosis and metabolic alterations in a model of multiple sclerosis**

D. De Battista (Milan, Italy)

**Signature of neurodegeneration due to primary cytodegeneration and adaptive immune responses**

S. Nyamoya (Aachen, Germany)

**Dysregulation of repressor element 1-silencing transcription factor in a mouse model of multiple sclerosis**

A. Uccelli (Genova, Italy)

**Cannabidiol mechanisms in the treatment of adoptively transferred EAE**

C. González-García (Majadahonda, Spain)

**Viability and distribution of intrathecally transplanted neural stem cells in the acute and chronic disease phases of experimental autoimmune encephalomyelitis**

A. Merlini (Milan, Italy)

**The role of plasma membrane lipid organization in demyelinating disease: using neurotoxic lipids to understand mechanisms of demyelination**

L. D'Auria (Chicago, United States)

**In vivo modeling of the nascent Multiple Sclerosis lesion: Mechanisms of blood brain barrier permeability and demyelination**

J.R. Linden (New York, United States)

**Altered expression of several fatty acid binding proteins during experimental autoimmune encephalomyelitis (EAE) in mice: Modulation by natural triterpenes**

M.L. Nieto (Valladolid, Spain)

**Combination therapy with ozanimod and dimethyl fumarate is synergistic in a mouse model of experimental autoimmune encephalitis**

F.L. Scott (San Diego, United States)

**Tolerization therapy reduces disease frequency and severity in mouse model of neuromyelitis optica**

M. Levy (Baltimore, United States)

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**Mesenchymal stem cell therapy ameliorates long-term cognitive decline in a murine model of experimental autoimmune encephalomyelitis with relapsing-remitting course**

G. Estivill-Torrús (Málaga, Spain)

**Estrogen receptor-alpha regulates epigenetic changes on genomic regulatory regions: potential biomarkers in multiple sclerosis outcomes**

M. Clerico (Torino, Italy)

**A next generation sequencing study in Italian multiplex families with multiple sclerosis**

F. Martinelli Boneschi (Milan, Italy)

**Identification and characterization of multiple sclerosis associated loci in the continental Italian population**

M. Sorosina (Milan, Italy)

**DNA methylation assessment using methylation-specific multiplex ligation dependent probe amplification in MS patients during relapses and remissions**

V. Tsimourtou (Larissa, Greece)

**Exome sequencing identifies a novel multiple sclerosis risk variant in the FKBP6 gene in a large dutch multiple sclerosis family**

J.Y. Mescheriakova (Rotterdam, Netherlands)

**Gene expression modulation induced by fingolimod in relapsing remitting multiple sclerosis**

E. Mascia (Milan, Italy)

**Whole exome sequencing in a chinese family with neuromyelitis optica spectrum disorder**

Y. Chang (Guangzhou, China)

**TARDBP Ala382Thr mutation and C9ORF expansion in multiple sclerosis: a possible role in brain atrophy**

J. Frau (Cagliari, Italy)

**MS risk alleles for AHI-1 and IL22RA genes are associated with relapses in children and adults with MS**

J.S. Graves (San Francisco, United States)

**Chromosome conformation capture to discover candidate epigenetic markers of Multiple Sclerosis disease severity**

T. Plavina (Cambridge, United States)

**Genotype is predicting Multiple Sclerosis pathology in the cohort of the Netherlands Brain Bank**

N.L. Fransen (Amsterdam, Netherlands)

**Analysis of DNA methylation in post-mortem brain tissue from Multiple Sclerosis patients**

M. Needhamsen (Stockholm, Sweden)

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**Genetic variants associated with intrathecal synthesis of IgG, IgM and IgA in multiple sclerosis**

C. Gasperi (Munich, Germany)

**Excess of rare variants in risk genes for multiple sclerosis identified by DNA resequencing**

E. Gil (Barcelona, Spain)

**MS patients show distinct CSF leukocyte profiles and cytokine intracellular production compared to other inflammatory and non-inflammatory neurological diseases**

C. Picón (Madrid, Spain)

**Infiltration of CD39 T cells in the CSF of relapsing-remitting multiple sclerosis patients**

M. Belghith (Tunis, Tunisia)

**Anti-C1q antibodies are characteristically present in patients with relapsing-remitting MS but not in secondary progressive MS: implications for the role of complement activation in the pathogenesis of MS**

V. Tsimourtou (Larissa, Greece)

**Imbalances of highly inflammatory Th1/17 cell subsets are associated with early development of multiple sclerosis**

M.M. van Luijn (Rotterdam, Netherlands)

**Paradoxical effects of TLR4 stimulation to B cells in multiple sclerosis**

Y. Okada (kyoto, Japan)

**T cell receptor repertoire of circulating and resident antigen-specific T cells of DR2+ patients affected by Multiple Sclerosis**

A.K. Patanella (Rome, Italy)

**Intrathecal IgM synthesis: is really a prognostic factor?**

J. Frau (Cagliari, Italy)

**Expression and induction of granulocyte-macrophage colony-stimulating factor in immune cells in multiple sclerosis**

J. Aram (Nottingham, United Kingdom)

**CD161 intermediate expression defines a neuropathogenic subset of CD8+ T cells in multiple sclerosis**

B. Nicol (Nantes, France)

**The intrathecal synthesis of BAFF inversely correlates with local IgG synthesis in multiple sclerosis at clinical onset**

M. Puthenparampil (Padua, Italy)

**Does natalizumab play a role in the natural killer cells activation against melanoma?**

I. Gandoglia (Genoa, Italy)

**High yield primary microglial cultures for functional studies related to reparative or pathological processes relevant to neurodegeneration**

J. Quandt (Vancouver, Canada)

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**Study of age induced changes in CSF immune cell profiles shown by MS patients classified according to intrathecal IgM synthesis**

L.M. Villar (Madrid, Spain)

**Modulation of IL27Ra expression by vitamin D**

V. Beynon (Boston, United States)

**EZH2 expression is up-regulated by multiple sclerosis therapies and expressed by effector memory and central memory T cells**

S. Malhotra (Barcelona, Spain)

**Emerging role of extracellular vesicle-derived microRNAs/mRNAs in immune response of Multiple Sclerosis**

S. Ritz (Basel, Switzerland)

**Levels of shedding microvesicles in cerebrospinal fluid of Multiple Sclerosis patients distinguish different stages of disease course**

T. Croese (Milano, Italy)

**Integrative transcriptomics and proteomics analysis reveals a potential role for serpinA3n and s100A4 in the neurodegeneration process during experimental autoimmune encephalomyelitis**

N. Fissolo (Barcelona, Spain)

**Genetic association of HLA alleles with JC polyomavirus and cross-reactivity with BK polyomavirus**

J. Huang (Solna, Sweden)

**EBV infection affects the processing of myelin oligodendrocyte glycoprotein peptides in B cells - Implications for multiple sclerosis**

E. Morandi (Nottingham, United Kingdom)

**Widespread Epstein-Barr virus reactivation and cytotoxic activity in the brain of a multiple sclerosis patient with lethal relapse after natalizumab withdrawal**

B. Serafini (Rome, Italy)

**Epstein-Barr virus immune response in multiple sclerosis patients and their family members**

J.Y. Mescheriakova (Rotterdam, Netherlands)

**Secretion of autoantibodies by autoreactive B cells is supported by anti-viral T cells**

N.S. Sanderson (Basel, Switzerland)

**Widespread brain atrophy following PML secondary to Natalizumab therapy**

S. Kumari (Birmingham, United Kingdom)

**Selective and transient effect of vitamin D3 supplementation on antibody responses against Epstein-Barr virus nuclear antigen 1 in relapsing-remitting multiple sclerosis**

E. Røsjø (Lørenskog, Norway)

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**Baseline vitamin D levels and multiple sclerosis activity in relapsing-remitting patients treated with fingolimod**

L. Ferrè (Milan, Italy)

**Association between body mass index and clinical outcome in neuromyelitis optica spectrum disorder**

M. Choi (Seoul, Korea, Republic of)

**Residual disability after multiple sclerosis relapses: the role of smoking**

J.I. Rojas (Buenos Aires, Argentina)

**Epigenomic changes in monocytes from RRMS patients with high body mass index and related preclinical animal models**

P. Casaccia (New York, United States)

**Increasing area level deprivation in England impacts age of progression and wheelchair use in multiple sclerosis**

B. Mitchell (London, United Kingdom)

**Vitamin D metabolic pathway alterations and risk of multiple sclerosis in patients with clinically isolated syndromes**

A. Farina (Milan, Italy)

**Immunoglobulin M oligoclonal bands in monosymptomatic optic neuritis: relation to clinical and paraclinical findings**

J.L. Frederiksen (Copenhagen, Denmark)

**Cellular mechanisms of Cav $\beta$ 3 subunit regulation of neuroinflammation**

S.K. Williams (Heidelberg, Germany)

**Alpha B-crystallin, a marker of oligodendrocyte stress, is upregulated within the optic nerve head during development of autoimmune optic neuritis**

A. Stojic (Heidelberg, Germany)

**Glutathione S-transferase polymorphisms associated with disease severity in multiple sclerosis (MS) increase neuronal vulnerability to oxidative stress**

D. Pitt (New Haven, United States)

**Search of therapies that favour remyelination based on genomic-signatures of neural stem cells**

C. Costa (Barcelona, Spain)

**Cervical spinal cord atrophy is an early marker of progressive MS onset**

B. Zeydan (Rochester, United States)

**Effect of pregnancy on disease course in progressive MS: a case-control study**

I. Kister (New York, United States)

**Non-gaussian diffusion MRI allows early characterization of tissue disruption in PPMS**

M. Petracca (New York, United States)

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**Complement activation and anaphylatoxin receptor upregulation in chronic active grey matter lesions of progressive multiple sclerosis**

R. Evans (Swansea, United Kingdom)

**Cortical lesion load correlates with periventricular NAWM damage severity in PPMS**

M. Pardini (Genoa, Italy)

**Predicting which patients with multiple sclerosis will develop a progressive course using patient information and clinically obtained brain volumes**

E. Alvarez (Aurora, United States)

**A descriptive study on recruitment effort for a phase I clinical trial of subcutaneous alemtuzumab in patients with progressive MS: the SCALA trial**

B. Rodríguez-Acevedo (Barcelona, Spain)

**Cytokine levels in interstitial brain fluid in progressive multiple sclerosis measured via intracerebral microdialysis**

A. Svenningsson (Stockholm, Sweden)

**Comparison of structural T1-weighted sequences: MPRAGE to MP2RAGE**

D. Pareto (Barcelona, Spain)

**Lesion filling more strongly affects estimation of grey than white matter volumes in a large patient sample depending on hyperintense lesion load**

C. Enzinger (Graz, Austria)

**Initial cross-sectional MR spectroscopy analysis of a cohort of secondary progressive MS patients enrolled in the MS-SMART trial**

D. Plantone (Rome, Italy)

**Neurite orientation dispersion and density imaging (NODDI) of the spinal cord in relapsing remitting multiple sclerosis**

F. Tona (London, United Kingdom)

**Objectively measured daily activity is associated with corticospinal pathway abnormalities in patients with MS**

N. Sola-Valls (Barcelona, Spain)

**Effect of ocrelizumab on magnetic resonance imaging markers of neurodegeneration in patients with relapsing multiple sclerosis: analysis of the Phase III, double-blind, double-dummy, interferon beta-1a-controlled OPERA I and OPERA II studies**

D.L. Arnold (Montréal, Canada)

**Consistency of longitudinal brain volume loss assessment in MS using SIENA/FSL**

R. Opfer (Hamburg, Germany)

**Cognitive decline in multiple sclerosis is associated with structural network disruption - a single-subject network approach**

C.M. Rimkus (Amsterdam, Netherlands)

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**Inhomogeneous magnetization transfer (ihMT): application for multiple sclerosis (MS)**

E. Van Obberghen (Marseille, France)

**Automated segmentation of FLAIR lesion volume and number: validation and comparison to manual inter-rater variability**

C. Egger (Zurich, Switzerland)

**Composite corticospinal tract MRI measure improves prediction of motor disability progression in clinically isolated syndrome**

M. Inglese (New York, United States)

**Nucleus-specific abnormal thalamic resting state functional connectivity in multiple sclerosis**

F. Lin (Buffalo, United States)

**Age at disease onset influences gray matter and white matter damage in adult multiple sclerosis patients**

M.A. Rocca (Milan, Italy)

**Spatial and temporal characteristics of magnetisation transfer ratio changes in different corticothalamic systems in multiple sclerosis**

S.H. van de Pavert (London, United Kingdom)

**A semi-automatic method for multiple sclerosis lesion segmentation on dual-echo magnetic resonance images: application in a multicenter context**

L. Storelli (Milan, Italy)

**Significance of aquaporin-4-immunoglobulin G in longitudinally extensive transverse myelitis**

D. Zelic (Vejle, Denmark)

**Clinical disability and smoking are associated with MRI disease activity in progressive multiple sclerosis**

C. Ammitzbøll (Copenhagen, Denmark)

**The influence of the cervical spinal canal size on demyelinating cord lesions in MS - an MRI study**

H. Ktayen (Nottingham, United Kingdom)

**The combined use of 3D T1- and T2-weighted sequences improves cervical cord lesion detection in patients with multiple sclerosis: a multicenter study at 3T**

L. Storelli (Milan, Italy)

**Gray matter atrophy progresses in a coherent manner between anatomically and functionally related brain areas: A 10-year source-based morphometry study in early relapsing-remitting MS patients**

N. Bergsland (Buffalo, United States)

**Thalamus atrophy predicting cognitive impairment in early relapsing remitting multiple sclerosis patients**

J.I. Rojas (Buenos Aires, Argentina)

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**No differences in spinal cord DTI abnormalities between neuromyelitis optica spectrum disorder and multiple sclerosis**

R. Cortese (London, United Kingdom)

**Imaging cortical demyelination using T1/T2-weighted ratio**

K. Nakamura (Cleveland, United States)

**Quantitative analysis of normal-appearing brain tissue in MS using magnetic resonance fingerprinting**

K. Nakamura (Cleveland, United States)

**A comprehensive assessment of cervical cord lesions in patients with multiple sclerosis on T1-MPRAGE at 3T: relationship with cord atrophy and disability**

M.A. Rocca (Milan, Italy)

**Brain volume in early MS patients with and without IgG oligoclonal bands in CSF: a case-control study**

G. Fenu (Cagliari, Italy)

**Longitudinal assessment of brain lesion changes in follow-up MRI scans of patients with multiple sclerosis**

A. Maertens (Leuven, Belgium)

**Role of cognitive reserve on cognitive function and regional brain atrophy in multiple sclerosis: a two-year longitudinal study**

M.A. Rocca (Milan, Italy)

**Long range effects of focal lesions on normal appearing brain tissue vary depending on the disease phenotype in multiple sclerosis**

A. Pitiot (Nottingham, United Kingdom)

**Pronounced brain connectivity disruption in adult patients with pediatric-onset MS**

A. Giorgio (Siena, Italy)

**Toward a standardized quantitative imaging protocol for multiple sclerosis: a NAIMS multisite study of magnetization transfer and quantitative T1 imaging techniques**

I. Tagge (Portland, United States)

**Signal mass as a more comprehensive measure of tissue loss in MS**

R.A. Brown (Montreal, Canada)

**Concomitant use of quantitative magnetization transfer and susceptibility mapping in longitudinal study of early multiple sclerosis patients**

O. Mougín (Nottingham, United Kingdom)

**An automated and robust method for dentate nucleus T1 signal hyperintensity quantification in MS patients receiving gadolinium-based contrast agents**

C. Chien (Berlin, Germany)

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**3T-PET/MRI analysis of cortical metabolism in MS patients discloses various patterns of association with white and grey matter pathology**

D. Poggiali (Padova, Italy)

**Clinical correlations of brain lesion location in multiple sclerosis: voxel-based analysis of a large clinical trial dataset**

A. Altermatt (Basel, Switzerland)

**White matter correlates of complex processing speed performance in relapsing-remitting multiple sclerosis**

R. Manca (Sheffield, United Kingdom)

**The virchow robin spaces in multiple sclerosis brain: a phase sensitive inversion recovery study**

A. Favaretto (Padova, Italy)

**Low corpus callosum and thalamus volume at baseline are associated with higher future whole brain volume loss**

A. Raji (Hamburg, Germany)

**The effect of dimethyl fumarate on cerebral gray matter atrophy in multiple sclerosis**

S. Dupuy (Boston, United States)

**Utility of the central vein sign to diagnose multiple sclerosis; A comparison of 3T T2\* and FLAIR-SWI**

M. Clarke (Nottingham, United Kingdom)

**Longitudinal changes in structural cortical networks in early PPMS**

C. Tur (London, United Kingdom)

**Treatment with interferon reduces the appearance of lesions in clinically relevant white matter tracts in patients with clinically isolated syndrome**

M. Battaglini (Siena, Italy)

**Inter-scanner MRI variability of multiple sclerosis lesion and tissue volumes in the NAIMS cooperative**

R. Shinohara (Philadelphia, United States)

**Analysis of atrophy, focal lesions and Virchow Robin spaces of the basal ganglia by phase sensitive inversion recovery discloses associations with physical and cognitive disability in multiple sclerosis**

A. Favaretto (Padova, Italy)

**The relationship of grey and white matter abnormalities with distance from the surface of the brain in multiple sclerosis**

M. Pardini (Genoa, Italy)

**Measurement of volume of subcortical structures in multiple sclerosis: agreement between 2D and 3D T1-weighted images**

À. Vidal-Jordana (Barcelona, Spain)

**Toward a standardized advanced imaging protocol for multiple sclerosis: inter- and intra-site variability in multiband diffusion measurements acquired by NAIMS**

D.L. Schwartz (Portland, United States)

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**Grey matter and Corpus Callosum atrophy is associated with disability increase in natalizumab treated patients: a longitudinal three-year study using FreeSurfer**

E. Ciampi (Barcelona, Spain)

**MSmetrix validation of normative brain volume population graphs to serve as a reference in the clinical follow up of MS patients**

A. Maertens (Leuven, Belgium)

**Structural cortical networks in optic neuritis (early CIS)**

C. Tur (London, United Kingdom)

**Cross-sectional and longitudinal myelin water fraction differences in the brainstems of MS and NMOSD cohorts compared to healthy control subjects**

L.E. Lee (Vancouver, Canada)

**Investigation of microscopic tissue changes in multiple sclerosis: a sodium (<sup>23</sup>Na) MRI study**

P. Eisele (Mannheim, Germany)

**Individual mapping of neuronal damage in early relapsing-remitting MS using [<sup>11</sup>C]Flumazenil PET**

B. Bodini (Paris, France)

**Individual remyelination profiles in cortical grey matter and in white matter lesions: a combined PET and MTR study**

B. Bodini (Paris, France)

**Toward a standardized quantitative imaging protocol for multiple sclerosis: inter- and intra-site variability in multiband rsfMRI measurements acquired by NAIMS**

D.L. Schwartz (Portland, United States)

**Grey matter atrophy in the fronto-striato-thalamo-cortical circuit and in the insula play a role in the pathophysiology of fatigue in multiple sclerosis**

M. Palotai (Boston, United States)

**Central vein sign in Susac's Syndrome and Multiple Sclerosis at 7T**

D. Ontaneda (Cleveland, United States)

**Asymptomatic spinal cord lesions do not predict long term disability in patients with CIS or early MS**

I. Dekker (Amsterdam, Netherlands)

**The effect of fingolimod on cerebral gray matter atrophy in multiple sclerosis**

F. Yousuf (Boston, United States)

**Cortical lesions dynamics in multiple sclerosis at 7T MRI: A longitudinal study**

C.A. Treaba (Charlestown, United States)

**The impact of brain atrophy on cognitive deficit in multiple sclerosis**

E. Tóth (Szeged, Hungary)

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**Longitudinal quantitative T2\* imaging at 7T reveals progression of microstructural damage in cortical lesions**

R. Ouellette (Charlestown, United States)

**Neuroinflammation and cortical demyelination in multiple sclerosis and their contribution to cognition: a 11C-PBR28 MR-PET and quantitative 7T imaging study**

E. Herranz (Boston, United States)

**Heterogeneity in individual patterns of microglial activation in MS measured non-invasively with 18F-DPA-714 PET**

B. Bodini (Paris, France)

**Restriction Spectrum Imaging and neurological disability in multiple sclerosis**

P. Sowa (Oslo, Norway)

**Cortical surface magnetization transfer ratio decreases in multiple sclerosis are age and region dependent**

D.A. Rudko (Montreal, Canada)

**Functional brain network organisation is related to cognition and fatigue in MS**

T. Welton (Nottingham, United Kingdom)

**Regional brain volume differences in patients with CIS. A voxel- based morphometry study**

R. Alyafeai (Barcelona, Spain)

**Dynamic functional connectivity analysis in Multiple Sclerosis**

H.H. Kitzler (Dresden, Germany)

**Cerebellar lesion mapping reveals divergent profiles of white matter involvement between cognitively impairment and cognitively preservation in relapsing remitting multiple sclerosis**

S.M. Tobyne (Boston, United States)

**Local subcortical grey matter volume changes and hippocampal white matter atrophy are associated with memory impairment in patients with Multiple Sclerosis**

S.D. Broicher (Zurich, Switzerland)

**Lateral Ventricle Volume change is associated with neurological and cognitive disability in multiple sclerosis: a 5-years follow-up study using an automated lateral ventricle segmentation algorithm**

E. Ruberte (Basel, Switzerland)

**Validation of an automated lateral ventricle delineation algorithm (ALVIN) in multiple sclerosis**

Ö. Yaldizli (Basel, Switzerland)

**Exploring the volumetry of subcortical structures as a potential surrogate of brain volumes in multiple sclerosis**

M.E. Zandoná (Porto Alegre, Brazil)

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**The influence of reconstruction slice thickness on the accuracy of T2 sagittal sequence in the Magnetic Resonance Imaging diagnosis of optic neuropathy, in patients with multiple sclerosis**

G.M. Healy (Dublin, Ireland)

**Uptake of [C11]PK11195 in the thalamus of Multiple Sclerosis (MS) patients versus Healthy Controls (HC)**

U. Kaunzner (New York, United States)

**Retinal fibre layer thickness is associated with clinical, MRI and neurophysiological measures of nervous damage but not with markers of disease activity in early relapsing MS**

M. Pisa (Milan, Italy)

**Optical coherence tomography measures correlate with brain volume and disability in relapsing multiple sclerosis patients**

À. Vidal-Jordana (Barcelona, Spain)

**Optical coherence tomography for the analysis of FTY720-mediated protection from retinal degeneration in mouse models of optic neuritis and traumatic nerve injury**

P. Albrecht (Düsseldorf, Germany)

**Relationship between gray matter, retinal nerve fiber layer thickness and cognitive performances in multiple sclerosis: a cross sectional study**

G. Coghe (Cagliari, Italy)

**No evidence of trans-synaptic degeneration in the visual pathway of MS at clinical onset**

L. Federle (Padova, Italy)

**Primary retinal pathology in neuromyelitis optica detected by optical coherence tomography**

N.-H. Kim (Goyangsi, Korea, Republic of)

**Influence of blood vessels on peripapillary retinal nerve fiber layer thickness measurements in patients with neuromyelitis optica spectrum disorders**

F.C. Oertel (Berlin, Germany)

**Retinal atrophy in CIS patients is associated with subclinical optic nerve involvement**

O. Outteryck (Lille, France)

**Optical coherence tomography reflectance as a potential marker of retinal axonal damage in a preclinical model of multiple sclerosis**

S.-C. Huang (Milan, Italy)

**Retinal ganglion cell loss in clinically isolated syndrome is associated with subsequent MS diagnosis**

H.G. Zimmermann (Berlin, Germany)

**Visual working memory but not verbal working memory load interferes with balance performance in earliest stages of MS**

G. Brecl Jakob (Ljubljana, Slovenia)

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**Effect of THC/CBD oromucosal spray on spasticity in MS: an open label clinical-neurophysiological study**

A. Nuara (Milan, Italy)

**Simultaneous recording of primary and cognitive visual evoked potentials in Multiple Sclerosis. Analysis of the relationship between primary visual and visuocognitive processing impairment and correlation with neuropsychological testing**

C. Cordano (Genova, Italy)

**Correlation between demyelination and the latency of visual evoked potentials in spinal cord homogenate model**

S. Marenga (Milan, Italy)

**Entropy and phase shift as electroencephalographic markers of cognitive Information Processing Speed in Multiple Sclerosis**

L.J. Canham (Bristol, United Kingdom)

**Multimodal evoked potentials predict NEDA in patients starting first line treatment for multiple sclerosis**

M. Pisa (Milan, Italy)

**Gait pattern in patients with different multiple sclerosis phenotypes**

I.P. Dujmovic Basuroski (Belgrade, Serbia)

**Sensitivity of optical coherence tomography, full-field visual evoked potentials and multifocal visual evoked potentials combination to assess the visual system in Multiple Sclerosis**

S. Guerrieri (Milan, Italy)

**VEPs and OCT to explore the correlation between demyelination and axonal loss in a preclinical model of Multiple Sclerosis**

V. Castoldi (Milano, Italy)

**Brain tDCS as a disease-modifying treatment of MS: A pilot study in a chronic EAE model**

R. Santangelo (Milan, Italy)

**Attenuation of the melanopsin-mediated sustained pupillary constriction response in MS: A putative pathophysiologic signature for interrogating the integrity of the retino-hypothalamic tract in MS**

E. Kildebeck (Dallas, United States)

**The strength of association between brain MRI and cognitive measures in multiple sclerosis depends on patients characteristics**

T. Uher (Prague, Czech Republic)

**Early cerebellar cognitive profile in multiple sclerosis: from saccadic impairment to grey matter alterations**

A. Moroso (Bordeaux, France)

**Gray and white matter damage differently correlated with cognition in adult multiple sclerosis patients with different age of disease onset**

M.A. Rocca (Milan, Italy)

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**The brief international cognitive assessment in multiple sclerosis: preliminary results from a two-year follow-up study**

N. McNicholas (Dublin, Ireland)

**Cognitive impairment is a marker of disease progression in multiple sclerosis patients: a 7-year follow-up study**

M. Pitteri (Verona, Italy)

**Vocational status in patients with relapsing remitting MS: what are the most contributing factors?**

M. Filser (Düsseldorf, Germany)

**Corpus callosum atrophy and cognitive impairment in multiple sclerosis**

M. González Platas (La Laguna, Spain)

**Cognitive changes in multiple sclerosis patients treated with subcutaneous adrenocorticotrophic hormone for acute relapse**

A.S. Drake (Buffalo, United States)

**Emotional modifications in multiple sclerosis: a neuropsychological study**

L. Pfaff (Strasbourg, France)

**Modifying the SDMT to reduce working memory: A pilot study**

V.P. Patel (Toronto, Canada)

**Cognitive profile clusters of patients with CIS and early relapsing remitting MS**

V. Chavarro (Berlin, Germany)

**Temporal lobe integrity underlies cognitive impairment in pediatric onset multiple sclerosis (MS)**

L.E. Charvet (New York, United States)

**The rivermead behavioural memory test: a useful tool for the assessment of prospective memory in multiple sclerosis patients**

M. López-Góngora (Barcelona, Spain)

**Functional and structural correlates of computerized processing speed in multiple sclerosis**

L.E. Charvet (New York, United States)

**Cerebral atrophy in relapsing-remitting multiple sclerosis and its relation to cognitive performance**

T. Kunchev (Sofia, Bulgaria)

**Deficit awareness and the role of executive functions and processing speed in memory and learning in patients with multiple sclerosis: An exploratory study**

F. García-Vaz (Madrid, Spain)

**Elevated kappa free light chain in cerebrospinal fluid in Korean patients with multiple sclerosis**

J.-W. Hyun (Goyang, Korea, Republic of)

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**Elevated cerebrospinal fluid -CRMP5 as a biomarker of damage to astrocyte foot process and growth cone in AQP4-IgG-seropositive NMOSD**

S. Nishiyama (Sendai, Japan)

**Sema4A as a biomarker for the selection of treatment of MS**

Y. Nakatsuji (Suita, Japan)

**Immunological profile of peripheral blood mononuclear cells (PBMCs) as a tool to understand the development of anti-drug immune responses in multiple sclerosis**

M. Adriani (London, United Kingdom)

**Functional and structural MRI predictors of disability worsening in multiple sclerosis: a 4-year follow-up study**

F. Pirro (Milano, Italy)

**Stability of anti-JCV antibody index in multiple sclerosis: a 6-year longitudinal study**

H. Hegen (Innsbruck, Austria)

**Decreased soluble IFN $\beta$  receptor (sIFNAR2) in multiple sclerosis patients: a potential serum diagnostic biomarker**

B. Oliver-Martos (Málaga, Spain)

**Olfactory threshold and odour identification are markers of disease activity in relapsing-onset multiple sclerosis**

G. Bsteh (Innsbruck, Austria)

**Nitrotyrosine, neuronal and inducible nitric oxide synthetase in serum and cerebrospinal fluid of patients with multiple sclerosis: potential markers of oxidative stress**

E. Andreadou (Athens, Greece)

**Brain-derived neurotrophic factor polymorphism methylation in multiple sclerosis patients: a marker of disease progression**

V. Nociti (Rome, Italy)

**Neurofilament light in serum: A potential biomarker for monitoring treatment efficacy in RRMS**

L. Novakova (Gothenburg, Sweden)

**MSDx complex-1: A circulating biochemical marker of neurodegeneration in Multiple Sclerosis?**

R.C. Nayak (Tucson, United States)

**Potential biomarkers for different clinical subtypes of multiple sclerosis**

E. Tahir Turanli (Istanbul, Turkey)

**Luminex analysis of immunoglobulin A, M, and G subclasses in the cerebrospinal fluid and serum in Multiple Sclerosis and other neurological diseases**

A. Pachner (Lebanon, United States)

## Scientific Programme

**Factors that changes carriership status of oligoclonal immunoglobulin gamma bands in cerebrospinal fluid in MS during follow up time, -registry based study**

V.D. Karrenbauer (Stockholm, Sweden)

**Anti-EBNA1 antibody titres at presentation predict failure of thalamic growth in pediatric multiple sclerosis (MS)**

G. Fadda (Montreal, Canada)

**Cerebrospinal fluid chitinase 3-like 1 levels in patients with radiologically isolated syndromes**

C. Matute-Blanch (Barcelona, Spain)

**Search of biomarkers in patients with progressive multiple sclerosis**

M. Comabella (Barcelona, Spain)

**The German MS Register: update on immunotherapy**

A. Stahmann (Hannover, Germany)

**Impaired pro-inflammatory capabilities and Th1/Th 17 cell activation by slan dendritic cells after fingolimod in multiple sclerosis**

K. Thomas (Dresden, Germany)

**Teriflunomide (Aubagio®) effect on gray matter pathology in multiple sclerosis is associated with the change in humoral response to Epstein-Barr virus**

R. Zivadinov (Buffalo, United States)

**Selective depletion of MOG-reactive B lymphocytes by modular T cell targeting**

K. Thomas (Dresden, Germany)

**A comparison of neurologists' and MS nurses' with MS patients' preferences for the characteristics of disease modifying drugs for decision making**

P.J. Jongen (Nijmegen, Netherlands)

**Ofatumumab is a fully human anti-CD20 antibody achieving potent B-cell depletion through binding a distinct epitope**

P. Smith (Basel, Switzerland)

**International evaluation of the new BETACONNECT autoinjector for patients with MS undergoing treatment with interferon beta-1b**

F. Patti (Catania, Italy)

**Assessment of lymphopenia in patients with multiple sclerosis treated with dimethyl fumarate in a real clinical setting**

R. Alroughani (Kuwait, Kuwait)

**Induction therapy of relapsing secondary multiple sclerosis using generic cladribine**

K. Rejdak (Lublin, Poland)

**Effectiveness and safety of dimethyl fumarate treatment in multiple sclerosis patients in clinical practice**

R. Alroughanii (Kuwait, Kuwait)

## Scientific Programme

**Impact of fingolimod treatment on T cell migration to the central nervous system: a four-year observational study**

R. Du Pasquier (Lausanne, Switzerland)

**Efficacy and safety of ozanimod from the 2-year blinded extension of RADIANCE: a randomized, double-blind, placebo-controlled Phase 2 trial in relapsing multiple sclerosis**

J.A. Cohen (Cleveland, United States)

**Efficacy of alemtuzumab is durable over 6 years in patients with active relapsing-remitting multiple sclerosis and an inadequate response to prior therapy in the absence of continuous treatment (CARE-MS II)**

E.J. Fox (Round Rock, United States)

**The efficacy of natalizumab versus fingolimod for patients with relapsing-remitting multiple sclerosis: a systematic review and meta-analysis of randomized and observational study data**

G. Tsivgoulis (Athens, Greece)

**Safety and efficacy of dimethyl fumarate in multiple sclerosis - an observational study**

A. Miclea (Bochum, Germany)

**Effect of oral versus injectable disease-modifying therapies on the epigenome-wide DNA methylation and gut microbiota in multiple sclerosis patients**

P. Casaccia (New York, United States)

**Can dimethyl-fumarate be a good treatment choice after natalizumab discontinuation?**

G. Farina (Verona, Italy)

**Comparative analysis of MS outcomes in natalizumab-treated patients using a novel three-way multinomial propensity score match**

T. Spelman (Parkville, Australia)

**Comparison of MS outcomes after Switching to Natalizumab versus staying on Interferon-beta or glatiramer**

T. Spelman (Parkville, Australia)

**Comparative analysis of MS outcomes in dimethyl fumarate-treated patients relative to propensity matched fingolimod, interferon, glatiramer acetate, or teriflunomide**

T. Spelman (Parkville, Australia)

**Fingolimod real world experience: the French grand-est cohort**

A. Tourbah (Reims, France)

**Dimethyl fumarate therapy is associated with increased IL10+ B regulatory cell subsets in patients with multiple sclerosis**

E. Staun-Ram (Haifa, Israel)

**The effect of the short chain fatty acid propionate on immune regulation in MS: a proof-of-concept study**

A. Duscha (Bochum, Germany)

## Scientific Programme

### **Treating multiple sclerosis with generic cladribine**

C. Alvarez-Gonzalez (London, United Kingdom)

### **Effect of natalizumab on global and regional cortical thickness in RRMS. A four year longitudinal study highlights efficacy and stresses the importance of a well-timed intervention**

D. Seppi (Padova, Italy)

### **Reduced adhesion to human endothelium as one mechanism of action of dimethyl fumarate in Multiple Sclerosis through down-regulation of VCAM-1 via HCA2-mediated upregulation of Nrf2**

J. Breuer (Münster, Germany)

### **Real-life safety, tolerability and efficacy of Dimethyl fumarate: a multicentre study**

G. Mallucci (Pavia, Italy)

### **Natalizumab treatment modifies peripheral cytokine profile in multiple sclerosis patients**

R. Balasa (Targu Mures, Romania)

### **PREFERMS study: post hoc analyses of patient retention, key clinical outcomes and patient satisfaction in an African-American patient subgroup**

M. Cascione (Tampa, United States)

### **Involvement of HCAR2-triggered pathways in dimethyl fumarate effect on immune and other cells**

A. Uccelli (Genova, Italy)

### **The effects of natalizumab and fingolimod on clinical and MRI measures in relapsing remitting multiple sclerosis: a two-year comparative study**

P. Preziosa (Milan, Italy)

### **Spanish registry of patients with multiple sclerosis treated with fingolimod (GILENYA registry): safety and effectiveness after four years of registry**

J. Meca-Lallana (Murcia, Spain)

### **Peginterferon beta-1a every 2 weeks increased achievement of NEDA over 4 years in the ADVANCE and ATTAIN studies in patients with RRMS**

D.L. Arnold (Montréal, Canada)

### **Minocycline reduces immune cell infiltration, but not preclinical microglial activation, during autoimmune optic neuritis**

R. Fairless (Heidelberg, Germany)

### **Expanded mode of action: unphosphorylated fingolimod exerts anti-inflammatory effects by inhibiting the IL-33 induced IFN- $\gamma$ formation in CD8+ Cells**

F. Ottenlinger (Frankfurt, Germany)

### **PREFERMS study: post hoc analyses of cross-sectional correlations between oral Symbol Digit Modalities Test scores and clinical, cognitive and radiological outcomes**

D.L. Arnold (Montréal, Canada)

## Scientific Programme

**Prevalence of liver injury and hepatitis after pulsed methylprednisolone therapy in multiple sclerosis patients**

V. Nociti (Rome, Italy)

**Retrospective analysis of a MS cohort patients treated by fingolimod in South France (Marseille- PACA and Corsica)**

J. Pelletier (Marseille, France)

**Alemtuzumab reduces the rate of brain volume Loss in RRMS patients who switched from SC IFNB-1a to alemtuzumab (4-Year Follow-Up of the CARE-MS I and II studies)**

A. Traboulsee (Vancouver, Canada)

**Real world experience with dimethyl fumarate in relapsing-remitting multiple sclerosis**

S.R. Cox (Dublin, Ireland)

**One-year MRI and relapse outcomes after initiation of dimethyl fumarate**

J. Greenfield (Calgary, Canada)

**Design of two phase III open-label trials evaluating ocrelizumab in patients with relapsing-remitting multiple sclerosis and suboptimal response to disease-modifying treatment**

R.A. Bermel (Cleveland, United States)

**Alemtuzumab durably slows brain volume loss over 6 years in the absence of continuous treatment in patients with active RRMS who were treatment-naïve (CARE-MS I) or had an inadequate response to prior therapy (CARE-MS II)**

A. Traboulsee (Vancouver, Canada)

**Serious adverse events (SAE), autoimmunity (AI), and infections following alemtuzumab (ALE) therapy in a large, high disability, treatment-refractory MS clinic cohort**

S.F. Hunter (Franklin, United States)

**A real life monocentric study on efficacy and tolerability of dimethylfumarate**

L. Moiola (Milan, Italy)

**Patient real-world clinical, neurological, tolerability, and safety outcomes for dimethyl fumarate and interferon beta-1a 44 µg subcutaneously three times weekly: A retrospective study using propensity score stratification and matching (PROTRACT)**

R. Zivadinov (Buffalo, United States)

**Peginterferon beta-1a is effective in RRMS regardless of pretreatment expression of interferon signature genes: Results from a sub-study of ADVANCE**

S. Eraly (Cambridge, United States)

**Effect of the human recombinant sIFNAR2 protein on the patterns of expression of cytokines in Multiple Sclerosis patients**

B. Oliver-Martos (Málaga, Spain)

## Scientific Programme

**Comparing rituximab induction therapy followed by glatiramer acetate therapy to glatiramer acetate monotherapy in MS patients on clinical and imaging**

J.M. Honce (Aurora, United States)

**Rebound of disease activity after discontinuation of natalizumab or fingolimod can be successfully treated with autologous haematopoietic stem cell transplantation**

D. Curro<sup>1</sup> (Genova, Italy)

**Changes of cerebrospinal fluid cytokine profile as a result of switching from first line MS-therapies to rituximab**

P. de Flon (Östersund, Sweden)

**Efficacy and safety of alemtuzumab in 104 patients with active relapsing-remitting MS: one-year follow-up in France**

X. Aygnac (Montpellier, France)

**Analysis of B cell trafficking in multiple sclerosis patients receiving natalizumab and fingolimod immunomodulatory therapy**

M.C. Kowarik (Munich, Germany)

**Autologous haematopoietic stem cell transplantation and its impact on patient's quality of life**

M. Smilowski (Katowice, Poland)

**Using cells to cure disease: Tolerogenic dendritic cells for the treatment of MS**

N. Cools (Wilrijk, Belgium)

**The efficacy of intravenous immunoglobulin for preventing relapses in neuromyelitis optica and its spectrum disorders**

H. Kim (Seoul, Korea, Republic of)

**Phase 1b, open label study of ublituximab in acute relapses of neuromyelitis optica spectrum disorder**

M. Levy (Baltimore, United States)

**Intense immunosuppression followed by co-transplantation of hematopoietic and mesenchymal cells for multiple sclerosis**

A. Uccelli (Genova, Italy)

**Lower relapse rates with natalizumab as compared with fingolimod as second-line treatment in relapsing-remitting multiple sclerosis**

C. Lienert (Bruderholz, Switzerland)

**Mitoxatrone treatment in MS patients with Secondary Multiple Sclerosis. A six-year follow-up. Evaluation of adverse effects and impact on disability**

M.-E. Evangelopoulos (Athens, Greece)

**Treatment of refractory tumefactive multiple sclerosis with high-dose iv methotrexate with leucovorin rescue**

R.N. Narayan (Dallas, United States)

## Scientific Programme

**Interleukin-4 enhances the survival rate of multiple sclerosis-patient derived neurons under oxidative stress**

S. Hirschberg (Bochum, Germany)

**Mesenchymal stem cells induce the acquisition of neuroprotective and reparative traits by cortical astrocytes**

A. Uccelli (Genova, Italy)

**Revealing neuroprotective properties of axon-myelin interactions: Its impact on glutamate-mediated axonal damage in MS**

P.H. Lopez (Córdoba, Argentina)

**MS-SMART trial design and recruitment status: a multi-arm phase IIB randomised double blind placebo-controlled clinical trial comparing the efficacy of three repositioned neuroprotective drugs in secondary progressive multiple sclerosis**

P. Connick (Edinburgh, United Kingdom)

**Mixed-lineage kinase 3 inhibitor URM-099 protects hippocampal synapses in experimental autoimmune encephalomyelitis**

M.J. Bellizzi (Rochester, United States)

**Regenerative potential of fumarate treatment and its impact on Nrf2-downstream signaling: crosstalk of immune and degenerative mechanism**

G. Ellrichmann (Bochum, Germany)

**Impact of dimehtylfumarate on cognitive dysfunction and its correlates in the EAE mouse model**

J.J. Cerqueira (Braga, Portugal)

**Long term preservation of neurological function in relapsing MS. Natalizumab "walks the walk, hand over hand"**

A. Pace (Salford, United Kingdom)

**Randomized controlled pilot trial of domperidone in relapsing remitting multiple sclerosis**

W.-Q. Liu (Calgary, Canada)

**ABT-555, a potential neurorestorative treatment in multiple sclerosis: pharmacokinetic, pharmacodynamic and safety results from phase 1 studies in healthy volunteers and multiple sclerosis patients**

B.A. Cree (San Francisco, United States)

**Voluntary physical activity enhances remyelination in mice after spinal cord demyelination: mechanisms of benefit of exercise for repair**

V.W.W. Yong (Calgary, Canada)

**Teriflunomide enhances oligodendrocyte maturation in vitro**

M.-S. Aigrot (Paris, France)

**Long-term efficacy of fingolimod treatment in relapsing-remitting patients who did not respond to interferon treatment**

J.A. Cohen (Cleveland, United States)

## Scientific Programme

**Impact of continuous fingolimod therapy and switching to fingolimod on relapse severity in patients with relapsing-remitting multiple sclerosis**

J. Haas (Berlin, Germany)

**The potential of individualized patient coaching to optimize treatment with delayed-release dimethyl fumarate: a retrospective analysis of patients with multiple sclerosis treated in a real-world setting**

Y. Begus-Nahrman (Elze, Germany)

**The ACROSS study: long-term efficacy of fingolimod in patients with RRMS (Follow-up at 10 years)**

T. Derfuss (Basel, Switzerland)

**Implementing quality recommendations in multiple sclerosis care - a strategic approach to improve brain health**

J. Hobart (Plymouth, United Kingdom)

**NEDA as a predictor of conversion to secondary progressive multiple sclerosis in patients with relapsing-remitting multiple sclerosis**

L. Kappos (Basel, Switzerland)

**COPAXONE® active registry - documentation of efficacy, tolerability and quality of life in outpatients with relapsing remitting multiple sclerosis (RRMS) treated with glatiramer acetate**

T. Ziemssen (Dresden, Germany)

**Real-life long-term effectiveness of fingolimod in a Swiss relapsing-remitting multiple sclerosis cohort**

C. Zecca (Lugano, Switzerland)

**A low percentage of CD4+ T-cells can predict disease reactivation after natalizumab discontinuation**

M. Capobianco (Orbassano, Italy)

**Alemtuzumab suppresses MRI disease activity over 6 years in patients with active relapsing-remitting multiple sclerosis and an inadequate response to prior therapy (CARE-MS II)**

A. Traboulsee (Vancouver, Canada)

**Importance of early treatment initiation in the clinical course of multiple sclerosis**

A. Kavaliunas (Stockholm, Sweden)

**4 years PANGAEA: effectiveness update of a 5 year non-interventional study on the daily use of fingolimod in Germany**

T. Ziemssen (Dresden, Germany)

**Development of former fingolimod study patients in a real world setting: results from the 4 year interim analysis of the non-interventional trial PANGAEA**

T. Ziemssen (Dresden, Germany)

**Discontinuation of disease-modifying therapies in relapsing remitting multiple sclerosis - outcome and prognostic factors**

G. Bsteh (Innsbruck, Austria)

## Scientific Programme

**Effect of exposure to branded glatiramer acetate during pregnancy on rates of pregnancy loss**

O. Neudorfer (Petach Tikva, Israel)

**Effect of fingolimod on multiple sclerosis severity score (MSSS) in patients with relapsing multiple sclerosis**

X. Montalban (Barcelona, Spain)

**Long-term real-world effectiveness of natalizumab: treatment outcomes from the Tysabri® observational program (TOP) stratified by baseline disability**

L. Kappos (Basel, Switzerland)

**Long-term safety of natalizumab treatment in multiple sclerosis (MS) in clinical practice: results from the tysabri global observational program in safety (TYGRIS)**

J. Foley (Salt Lake City, United States)

**Real world experience of fingolimod after switching multiple sclerosis (MS) therapy; focus on natalizumab naïve and experienced persons with MS, respectively**

L. Forsberg (Stockholm, Sweden)

**National, real-time monitoring of MS-immunotherapy patterns with visualisation and analysis platform (VAP) implemented in swedish MS-registry**

L. Stawiarz (Stockholm, Sweden)

**Durable improvement in clinical outcomes in treatment-naïve patients with relapsing-remitting multiple sclerosis who switched from SC IFNB-1a to alemtuzumab (care-MS I extension study 4-year follow-up)**

C. Oreja-Guevara (Madrid, Spain)

**Efficacy and safety of Natalizumab treatment for relapsing-remitting multiple sclerosis: results from a retrospective French cohort**

R. Beyrouiti (mulhouse, France)

**Long-term efficacy, safety, tolerability and quality of life with fingolimod treatment in patients with multiple sclerosis in real-world settings in France: VIRGILE one-year results**

C. Papeix (Paris, France)

**Long-term follow-up of patients treated with natalizumab: results from a single centre cohort**

L. Midaglia (Barcelona, Spain)

**Lymphopenia and eosinophilia in dimethyl fumarate treated patients**

A. Vinagre Aragón (Madrid, Spain)

**The value of PASAT short-term training: Only a 'practice effect' or does it tell us more about MS?**

M.P. Sormani (Genoa, Italy)

**Anti-JCV antibody serostatus in a long-term natalizumab infusing population**

T. Hoyt (Salt Lake City, United States)

## Scientific Programme

**TRUST-Study: methods of an optional MRI-safety surveillance for progressive multifocal leukoencephalopathy (PML) in relapsing remitting multiple sclerosis patients treated with Natalizumab**

A. Gass (Mannheim, Germany)

**Rituximab as an effective treatment option after natalizumab withdrawal**

M. Capobianco (Orbassano, Italy)

**Infection prevention protocols in the monographic alemtuzumab unit: towards improving safety**

A. Domínguez Mayoral (Sevilla, Spain)

**Prospective, multicentric study of using JCV serology and L-selectin for PML risk assessment**

N. Schwab (Muenster, Germany)

**Very early immune thrombocytopenia (ITP) 2 months after first dosing in a patient treated with alemtuzumab for relapsing remitting MS - are our clinical vigilance methods adequate?**

J. Haartsen (Melbourne, Australia)

**The influence of information presentation formats on treatment understanding and decision-making in MS patients**

G. Reen (Egham, United Kingdom)

**Is Maraviroc useful in immune competent patients? Clinical and radiological features of four Natalizumab-related PML cases**

N. De Rossi (Brescia, Italy)

**Effect of aspirin on flushing in relapsing-remitting multiple sclerosis patients receiving delayed-release dimethyl fumarate**

D. Rog (Manchester, United Kingdom)

**CD62L and prediction of progressive multifocal leukoencephalopathy: the controversy might be time-and technology-related**

D. Brassat (Toulouse, France)

**Infections and serious infections with ocrelizumab in relapsing multiple sclerosis and primary progressive multiple sclerosis**

H.-P. Hartung (Düsseldorf, Germany)

**New algorithm to estimate risk of natalizumab-associated progressive multifocal leukoencephalopathy (PML) in anti-JCV antibody positive patients: analyses of clinical trial data to provide further temporal precision and inform clinical practice**

H. Koendgen (Cambridge, United States)

**Quantitative electroencephalography supports the diagnosis and predicts the functional outcome in natalizumab associated progressive multifocal leukoencephalopathy**

G. Classen (Bielefeld, Germany)

**Natalizumab extended interval dosing reduces serum trough natalizumab concentrations and  $\alpha 4$  integrin receptor occupancy**

J. Foley (Salt Lake City, United States)

## Scientific Programme

**Efficacy and safety of fingolimod 0.5 mg every-other-day in multiple sclerosis patients who presented severe adverse events during conventional fingolimod treatment**

A. Merlini (Milan, Italy)

**Use of AAN PML diagnostic criteria in dutch-belgian natalizumab-associated PML cohort**

M.T. Wijburg (Amsterdam, Netherlands)

**An observational, multicentre, one-day study to assess demographic, clinical and neurovegetative characteristics of patients requiring extended cardiac monitoring following administration of the first dose of fingolimod**

G.L. Mancardi (Genoa, Italy)

**Inflammatory natalizumab-associated PML: baseline characteristics, lesion evolution and relation with PML-IRIS**

M.T. Wijburg (Amsterdam, Netherlands)

**Analysis of CD4+CD62L+ peripheral blood T-cells in patients with multiple sclerosis - correlation with disease modifying treatment and anti-JCV antibody index**

M.K. Boziki (Thessaloniki, Greece)

**Nail loss: a new adverse event of teriflunomide treatment?**

L. Mancinelli (Chieti, Italy)

**Multiple sclerosis disease rebound after treatment switch from fingolimod to alemtuzumab**

M. Willis (Cardiff, United Kingdom)

**Progressive multifocal leukoencephalopathy in a JCV seronegative patient treated by natalizumab : a new case report**

N. Hadhoum (Lille, France)

**Alemtuzumab-induced idiopathic thrombocytopaenic purpura in three regional UK MS treatment centres**

A. Pace (Salford, United Kingdom)

**Transgenic overexpression reveals a direct dose-dependent role for interferon in the pathogenesis of thrombotic microangiopathy, with implications for risk mitigation**

D. Hunt (Edinburgh, United Kingdom)

**Ambulatory motor dysfunction in MS assessed by wearable inertial sensor metrics during the timed-up-and-go task (TUG)**

H.J. Witchel (Brighton, United Kingdom)

**INSPIRATION-MRI: standardized acquisition and centralized quantitative reading of MRI scans of RRMS patients in German daily clinical practice**

A. Gass (Mannheim, Germany)

**Usefulness in clinical practice of 1-year magnims scoring system to predict response to glatiramer acetate**

M. Romeo (Milan, Italy)

## Scientific Programme

**Improved cerebral blood flow after natalizumab treatment in multiple sclerosis**

C. Record (London, United Kingdom)

**Permeability of the blood-brain barrier in normal appearing white and grey matter predicts early inadequate treatment response to fingolimod and natalizumab**

S.P. Cramer (Glostrup, Denmark)

**Observational study to identify biomarkers for treatment response in dimethylfumarate treated MS patients**

M. Diebold (Basel, Switzerland)

**Plasma cytokine concentration changes in multiple sclerosis patients after treatment with dimethyl fumarate**

A.R. Gafson (London, United Kingdom)

**Differential effects of fingolimod on NKs and B cells subsets of relapsing-remitting multiple sclerosis patients**

I. Moreno Torres (Majadahonda, Spain)

**Sustained disability improvement in patients with secondary progressive multiple sclerosis (SPMS) assessed by a multicomponent endpoint: a post hoc analysis from the ASCEND study**

G. Giovannoni (London, United Kingdom)

**High sensitivity measurement of neurofilament-light levels in plasma demonstrates a significant reduction in multiple sclerosis patients starting fingolimod**

F. Piehl (Stockholm, Sweden)

**Adding brain volume changes to Non-evidence of Disease Activity (NEDA) criteria and to Rio score for predicting treatment response after interferon-beta therapy**

F. Pérez-Miralles (Barcelona, Spain)

**Treatment response to dimethyl fumarate is characterized by CD8+ T cell reduction in multiple sclerosis**

F. Luessi (Mainz, Germany)

**Deploying the MS Bioscreen in the clinic: towards real-world precision medicine**

R. Bove (Brookline, United States)

**Therapeutic use of anti- $\alpha$ 4 integrin antibodies in Rasmussen's encephalitis**

H. Kebir (Montreal, Canada)

**Increased IFN-beta binding antibody levels in non-responding MS patients - a Hungarian multicentre study**

C. Rajda (Szeged, Hungary)

**Importance of upper limb function in advanced multiple sclerosis**

A. Thomson (London, United Kingdom)

## Scientific Programme

**Baseline assessment of fatigue and health-related quality of life in patients with primary progressive multiple sclerosis in the ORATORIO study**

J.S. Wolinsky (Houston, United States)

**Patient-reported outcomes in the phase III double-blind, placebo-controlled ORATORIO study of ocrelizumab in primary progressive multiple sclerosis**

J. de Seze (Strasbourg, France)

**A small molecule therapy for MS patients appears to override inhibitors of oligodendrogenesis to induce remyelination**

S.H. Nye (Mequon, United States)

**Effectiveness of autologous bone marrow mesenchymal stem cells intrathecal transplantation in patients with secondary progressive multiple sclerosis**

M. Swiderek-Matysiak (Lodz, Poland)

**Results of a pilot trial of lithium in progressive multiple sclerosis**

J.R. Rinker (Birmingham, United States)

**Fingolimod effect on disability progression in primary progressive multiple sclerosis patients with inflammatory activity: A post-hoc subgroup analysis of the INFORMS study**

J.S. Wolinsky (Houston, United States)

**Risk perception and propensity and its influences on treatment of Italian Multiple Sclerosis patients**

F. Sangalli (Milano, Italy)

**Non-interventional post-authorization safety study to prospectively evaluate the safety and tolerability profile of Rebif® HSA-free scIFNβ-1a in naive relapsing remitting multiple sclerosis subjects: STEP study**

A. Bertolotto (Orbassano, Italy)

**DEcision Coaching In Multiple Sclerosis (DECIMS) - pilot randomised controlled trial and process evaluation**

A.C. Rahn (Hamburg, Germany)

**Tuberculosis pachymeningitis during natalizumab therapy for multiple sclerosis**

A.C. Piccolo (Sao Paulo, Brazil)

**Subgroup analyses in phase III trials of therapeutics for multiple sclerosis: a closer look**

A. Shirani (Dallas, United States)

**Phase II double blind trial to investigate the efficacy and the optimal way of administration (clinical, neurophysiological and neuroradiological effects) of autologous mesenchymal bone marrow stem cells in active and progressive Multiple Sclerosis**

P. Petrou (Jerusalem, Israel)

**Comparison of clinical characteristics of patients in NMO & NMOSD**

E. Yilmaz (Ankara, Turkey)

## Scientific Programme

**Nabiximols has a beneficial effect on self report of MS related spasticity**

S. De Trane (London, United Kingdom)

**Long-term efficacy of intrathecal baclofen to manage severe spasticity in MS patients**

Y. Sammaraiee (London, United Kingdom)

**The Effects of modified-release fampridine on upper limb impairment in multiple sclerosis**

R. Macdonell (Melbourne, Australia)

**Lack of improvement in quantitative gait analysis after Botulinum toxin injection in patients with multiple sclerosis**

G. Coghe (Cagliari, Italy)

**The use of medical-grade Cannabis (Bedrocan®) in patients non-responders to nabiximols (sativex®)**

F. Saccà (Napoli, Italy)

**Nabixol (Sativex) in spasticity responders multiple sclerosis patients is effective on subjective but not on objective measures of walking ability**

C. Solaro (Genova, Italy)

**Comparative effectiveness of natalizumab and fingolimod treatment on cognitive functions in relapsing multiple sclerosis**

P. Iaffaldano (Bari, Italy)

**Gait kinematic changes after fampridine therapy in primary progressive multiple sclerosis**

D. Gómez-Andrés (Madrid, Spain)

**The impact of fampridine treatment on fatigue, quality of life and mood in patients with multiple sclerosis**

A. Barros (Lisboa, Portugal)

**Phase II, placebo-controlled, double-blinded, crossover study of extended-release dalfampridine in monophasic transverse myelitis**

K. Schwartz (Baltimore, United States)

**Experience of fampridine treatment in a cohort of 167 Portuguese MS patients**

J. Ferreira (Lisboa, Portugal)

**A survey of risk tolerance to multiple sclerosis therapies**

R.J. Fox (Cleveland, United States)

**Development of a conceptual framework for daily life activities in patients with early stage relapsing-remitting multiple sclerosis**

S.-Y. Chen (Cambridge, United States)

**Well-being, health, and adjustment in early onset multiple sclerosis (MS): the role of personality**

L. Strober (West Orange, United States)

## Scientific Programme

**Longitudinal study of the effect of PR-fampridine walking and quality of life in people with severe MS-related walking impairment**

R.A.L. Ewe (London, United Kingdom)

**Using social media to communicate with people affected by multiple sclerosis**

A. Thomson (London, United Kingdom)

**Evaluation of e-learning tools for MS patients - mymsmagazin.com**

G. Winkler (Hamburg, Germany)

**Nutrition is of great concern for people newly diagnosed with multiple sclerosis**

G. von Geldern (Seattle, United States)

**Comparison of quality of life in autoimmune diseases of the spinal cord**

M.A. Mealy (Baltimore, United States)

**Benefits of a mindfulness- based intervention compared to psychoeducation among multiple sclerosis patients**

I. González-Suárez (Madrid, Spain)

**Brain activations during the kinetic scenes perception and their changes after physiotherapy in patients with multiple sclerosis**

I. Stetkarova (Prague, Czech Republic)

**Integrated assessment of handwriting movement in people with multiple sclerosis**

L. Pedullà (Genoa, Italy)

**Kinematic evaluation of handwriting movement in people with multiple sclerosis**

A. Bisio (Genoa, Italy)

**Both anticipatory and compensatory postural adjustments are altered during external perturbations in multiple sclerosis individuals with a previous fall history**

S. Tajali (Khuzestan, Iran, Islamic Republic of)

**Effects of core stability on functional capacity in patients with multiple sclerosis**

C. İrkeç (Ankara, Turkey)

**Physiotherapy and steroids in the management of motor relapses in multiple sclerosis: a combined therapy**

S. Sánchez (Barcelona, Spain)

**The effect of vibrotactile biofeedback of trunk sway on balance control in multiple sclerosis**

H.M. Rust (Basel, Switzerland)

**Prolonged-release fampridine and active motor training in MS patients: a Phase IV, double-blind, placebo-controlled**

F. Jacques (Gatineau, Canada)

## Scientific Programme

**Predicting multiple sclerosis disease course with patient centred outcomes (PCOs): a machine learning approach**

G. Bricchetto (Genova, Italy)

**Adaptive conflict resolution: Structural variability in regions that trigger adaptation is related to cognitive performance**

S.A. Holmes (Montreal, Canada)

**Are coping strategies related to negative work events in multiple sclerosis patients?**

K. van der Hiele (Rotterdam, Netherlands)

**Patient education for people with multiple sclerosis-associated fatigue: a systematic review**

M.J. Wendebourg (Hamburg, Germany)

**Is empathy related to work participation, work role functioning and productivity in multiple sclerosis patients?**

D.A.M. van Gorp (Rotterdam, Netherlands)

**Randomized, blinded, controlled study to assess the efficacy of a cognitive training program in patients with multiple sclerosis (MS)**

M. González Platas (La Laguna, Spain)

**Facilitating the use of an alternative pointing system for patients with Multiple Sclerosis with motor and cognitive impairments through procedural learning**

N. Moyano (Fraiture-en-Condroz, Belgium)

**Attenuated salivary cortisol and cardiovascular-autonomic response to aerobic exercise in people with multiple sclerosis**

M.S. Pedersen (Århus C, Denmark)

**Exercise: finding the good in inflammation using models of MS**

B.T. Lund (Los Angeles, United States)

**Objectively measured physical activity and sedentary behaviour profiles of people moderately affected by Multiple Sclerosis**

E.H. Coulter (Glasgow, United Kingdom)

**Changes in resting-state functional connectivity of the caudate following resistance exercise training in persons with MS: A preliminary report**

N. Akbar (West Orange, United States)

**A six-week intensive treadmill training improves walking ability in MS patients with moderate disability**

M.A. Biancu (Sassari, Italy)

**The effect of Mediterranean diet and exercise as a complementary therapy in fatigue of patients with relapsing remitting MS (RRMS)**

M. Abolhasani (Tehran, Iran, Islamic Republic of)

**Use of pedometer based internet mediated intervention for adults with multiple sclerosis to increase physical activity level**

K. Novotna (Prague, Czech Republic)

## Scientific Programme

**Genome-wide scan identifies association between an interferon regulatory factor-related variant and interferon-beta induced liver injury in multiple sclerosis patients**

K. Kowalec (Vancouver, Canada)

**Evaluation of the effect of fingolimod on microglia using serial PET imaging in multiple sclerosis**

M. Sucksdorff (Turku, Finland)

**The role of oligoclonal bands in the diagnosis of multiple sclerosis**

G. Arrambide (Barcelona, Spain)

**Contribution of clinical and MRI to evaluation of NEDA (No Evidence of Disease Activity) from the pivotal trial of interferon beta-1b in multiple sclerosis**

D.S. Goodin (San Francisco, United States)

**NEDA epoch analysis of patients with relapsing multiple sclerosis treated with ocrelizumab: Results from OPERA I and OPERA II, phase III studies**

G. Giovannoni (London, United Kingdom)

**Pathological cut-offs of whole and regional brain volume loss rates in multiple sclerosis**

T. Uher (Prague, Czech Republic)

**Meta-study of 17 independent patient cohorts shows consistently high anti-John Cunningham polyoma virus seroconversion rates under natalizumab treatment and differences between technical and biological converters**

N. Schwab (Muenster, Germany)

**Creating a consensus evaluation and expert opinion reporting platform for brain MRI in Multiple Sclerosis with higher increased risk of Progressive Multifocal Leukoencephalopathy**

F. Barkhof (Amsterdam, Netherlands)

**SIENA-XL for the assessment of gray matter and white matter volume changes in clinical studies of patients with multiple sclerosis**

M. Battaglini (Siena, Italy)

**Age at natalizumab start as risk cofactor for developing early onset progressive multifocal leukoencephalopathy**

L. Prosperini (Rome, Italy)

**Influence of 25(OH)D levels and genetic variants on disease severity in MS**

T.F. Andlauer (Munich, Germany)

**High sensitivity serum neurofilament-light chain measurements correlate with disease activity and disability in multiple sclerosis and are reduced after immunomodulatory treatment intervention**

C. Barro (Basel, Switzerland)

**Anti-aquaporin-4 titer is not predictive of disease course in neuromyelitis optica spectrum disorder**

R.A. Kessler (Baltimore, United States)

## Scientific Programme

**Serum neurofilament light chain levels in MS: a promising biomarker of clinical and subclinical disease severity**

G. Disanto (Lugano, Switzerland)

**3-dimensional shape and surface characteristics differentiate multiple sclerosis lesions from other etiologies**

D.T. Okuda (Dallas, United States)

**The genetic map of multiple sclerosis unravels a fine interplay between immune cells and brain repair mechanisms**

N. Patsopoulos (Boston, United States)

**Computing spinal cord atrophy using the Boundary Shift Integral: a more powerful outcome measure for clinical trials?**

F. Prados (London, United Kingdom)

**Direct interaction of Th17 lymphocytes with oligodendrocytes in EAE and MS**

C. Laroche (Montreal, Canada)

**The effect of smoothened-agonist on remyelination in the rat central nervous system**

S. Kodali (Cambridge, United Kingdom)

**Histopathological characteristics of cavitory multiple sclerosis**

E. Bahn (Göttingen, Germany)

**Mutations in the gene tripeptidyl peptidase II (TPP2) and multiple sclerosis**

A. Zimprich (Vienna, Austria)

**Development of ARN-6039, an ROR $\gamma$ t/IL-17-TH17 specific agent for treatment of multiple sclerosis and evaluation of phase 1 trials in normal controls**

J.W. Rose (Salt Lake City, United States)

**The effect of body mass index on disease outcomes in neuromyelitis optica spectrum disorder with aquaporin4-IgG**

S.-M. Kim (Seoul, Korea, Republic of)

**Comorbidities affect treatment choice and persistence in RRMS: a multicenter study**

A. Laroni (Genova, Italy)

**RGC-32 promotes Th17 cell differentiation and enhances experimental autoimmune encephalomyelitis**

A. Tatomir (Baltimore, United States)

**A placebo randomized controlled study to test the efficacy and safety of GNBAC1, a monoclonal antibody for the treatment of multiple sclerosis - rationale and design**

R. Glanzman (Plan les Ouates, Switzerland)

## Scientific Programme

**A comparison of seropositive and seronegative patients in the Collaborative International Research in Clinical and Longitudinal Experience for NMOSD Studies (CIRCLES) registry**

L.J. Cook (Salt Lake City, United States)

**ib-ms decreases disability progression in patients with progressive forms of multiple sclerosis. A double blind placebo controlled study**

C. Carcamo (Santiago, Chile)

**Preferential deregulation of microRNAs in the cerebrospinal fluid rather than in peripheral compartments of MS patients. Analysis of miRNA expression levels according to disease activity**

V. van Pesch (Brussels, Belgium)

**The effects of mechanical focal vibration (Equistasi®) on walking impairment in multiple sclerosis patients: a randomized, double-blinded vs placebo study**

E. Spina (Naples, Italy)

**Neurofilament results for the phase II neuroprotection study of phenytoin in optic neuritis**

S. Gnanapavan (London, United Kingdom)

**Anti-JCV IgG sero-conversion during treatment with natalizumab (especially to high JCV index values) co-incides with presence of anti-JCV IgM antibodies**

T. Schneider-Hohendorf (Muenster, Germany)

**Opinions on physician-assisted death: NARCOMS preliminary results**

S.S. Cofield (Birmingham, United States)

**Improved clinical and radiological outcomes associated with reduced absolute lymphocyte counts at 3 and 6 months post-Tecfidera treatment initiation**

K. Wright (Dallas, United States)

**Central nervous system intrinsic effects of Laquinimod in vivo are not mediated via the aryl hydrocarbon receptor**

W. Brück (Göttingen, Germany)

**The integrated imaginative distention, an effective self-managed tool to cope with fatigue in Multiple Sclerosis**

A. Protti (Milano, Italy)

**Longitudinal changes in metabolic neuroimaging markers linked to the clinical decline in patients with secondary progressive multiple sclerosis**

I.-Y. Choi (Kansas City, United States)

**Infliximab treatment improves PML in sarcoidosis patients with T cell dysregulation**

S.C. Rosenkranz (Hamburg, Germany)

**Serological response against an immediately early protein 1 (IE1) protein sequence from HHV-6A, but not HHV-6B, is positively associated with multiple sclerosis**

A. Fogdell-Hahn (Stockholm, Sweden)

## Scientific Programme

**Gender effect on neuromyelitis optica spectrum disorder with aquaporin4-immunoglobulin G**

S.-M. Kim (Seoul, Korea, Republic of)

**Studies of circumpapillary retinal nerve fiber layer and macular ganglion cell-inner plexiform layer thickness losses in multiple sclerosis, neuromyelitis optica, and anti-myelin oligodendrocyte glycoprotein positive patients**

N. Mekhasingharak (Phitsanulok, Thailand)

**Patterns of ocular motor fatigue in internuclear ophthalmoparesis due to multiple sclerosis**

A. Serra (Cleveland, United States)

**Head circumference is decreased in MS patients with clinical disease onset in adulthood: a cross-sectional study**

C.S. Casserly (Toronto, Canada)

**Case series of three patients with multiple sclerosis showing severe activation of disease during immunotherapy with alemtuzumab**

T. Wehrum (Freiburg im Breisgau, Germany)

**Fingolimod (Gilenya) therapy: Next generation sequencing of the immune repertoire reveals the temporal stability of expanded T cell clones in peripheral blood**

N. Goebels (Duesseldorf, Germany)

**The use of digital media/telemedicine to aid urine monitoring for multiple sclerosis (MS) patients treated with Alemtuzumab**

O.R. Pearson (Swansea, United Kingdom)

**Profile of HERV-W expression in multiple sclerosis patients**

L.H. Nali (São Paulo, Brazil)

**Polygraphic evaluation of dysphagia in multiple sclerosis**

Y. Beckmann (Izmir, Turkey)

**Randomised, double-blind, phase 2, multicentre study of once daily oral CHS131 in treatment-naïve subjects with relapsing-remitting Multiple Sclerosis**

D. Weinstein (Dobbs Ferry, United States)

**Quality of life and cost effectiveness following the use of Functional Electrical Stimulation (FES) of the peroneal nerve for people with multiple sclerosis**

T. Street (Salisbury, United Kingdom)

**The Aryl Hydrocarbon Receptor in the Peripheral Immune System is the Molecular Target of Laquinimod in MOG induced Experimental Autoimmune Encephalomyelitis**

J. Kaye (Netanya, Israel)

**Evaluation of oxygen uptake kinetic asymmetries: A pilot study**

R.D. Larson (Norman, United States)

## Scientific Programme

**Brain atrophy by automated MRI reading in long-term natalizumab treated patients: Real world data suggests brain atrophy rates in range of healthy individuals**

D. Horáková (Prague, Czech Republic)

**Dissociation between lesion volume accumulation and brain volume loss occurs in only small proportion of multiple sclerosis patients over long-term follow-up**

T. Uher (Prague, Czech Republic)

**Low levels of vitamin D in neuromyelitis optica and neuromyelitis optica spectrum: association with quality of life**

Y. Beckmann (Izmir, Turkey)

**Comparison of the prevalence and the clinical characteristics of NMOSD and MS in northern Japan.**

H. Houzen (Obihiro, Japan)

**Effects of teriflunomide treatment on the CD4+ T-cell receptor repertoire in patients with relapsing-remitting MS**

L. Klotz (Münster, Germany)

**Identifying exercise promotion strategies for individuals with MS that can be delivered through healthcare providers**

Y.C. Learmonth (Urbana, United States)

**Efficacy and safety of first line oral therapies in relapsing-remitting multiple sclerosis: Dimethyl fumarate vs teriflunomide in the Chieti experience**

L. Mancinelli (Chieti, Italy)

**Adverse events of rituximab in a Swedish MS population sample**

I. Boström (Linköping, Sweden)

**LSD1 inhibition, a potential epigenetic therapeutic approach for the treatment of multiple sclerosis**

T. Maes (Cornella de Ll., Spain)

**An integrated molecular landscape of multiple sclerosis (MS) yields novel clues for diagnosis and treatment**

M.B. Martens (Nijmegen, Netherlands)

**Multi-category machine learning methods to identify diagnostic gene expression patterns consistent with multiple sclerosis in peripheral whole blood**

C.F. Spurlock (Nashville, United States)

**Use of patient-reported and performance-based tests to predict falls in multiple sclerosis patients**

S. Tajali (Khuzestan, Iran, Islamic Republic of)

**Highly effective treatment of multiple sclerosis by blocking the lipid metabolism**

A.S. Mørkholt (Aalborg, Denmark)

## Scientific Programme

### **A novel assay for natalizumab dose optimization**

B.T. Messmer (San Diego, United States)

### **Subgroup analyses of natalizumab treatment response in ASCEND, a multicenter, double-blind, placebo-controlled, randomized phase 3 clinical trial in patients with secondary progressive multiple sclerosis (SPMS)**

R. Kapoor (London, United Kingdom)

### **The influence of psychomotor therapy on cognitive and motor functioning in MS patients**

A.J. Mielnik (Borne Sulinowo, Poland)

### **Efficacy of SFX-01, a sulforaphane-based drug, in experimental autoimmune encephalomyelitis**

I. Galea (Southampton, United Kingdom)

### **IL-11 induces autoreactive CD4+ cell migration to the CNS in experimental autoimmune encephalomyelitis (EAE) and relapsing remitting multiple sclerosis (RRMS)**

S. Markovic-Plese (Chapel Hill, United States)

### **White matter integrity and processing speed function in secondary progressive multiple sclerosis**

M.R. Stabile (Venice, Italy)

### **Apelin 13: A promising biomarker for multiple sclerosis**

M. Alpua (Kirikkale, Turkey)

### **24S-, 25- and 27-hydroxycholesterol levels in the serum and cerebrospinal fluid of patients with neuromyelitis optica revealed by LC-Ag+CIS/MS/MS and LC-ESI/MS/MS with picolinic derivatization**

S.-M. Kim (Seoul, Korea, Republic of)

### **Incidence and mitigation of gastrointestinal events in patients with relapsing-remitting multiple sclerosis receiving dimethyl fumarate - a German phase IV study (TOLERATE)**

R. Gold (Bochum, Germany)

### **In-depth Immunophenotyping of newly diagnosed Relapsing Remitting Multiple Sclerosis (RRMS) patients and pPatients treated with dimethyl fumarate**

M. Nakhaei-Nejad (Edmonton, Canada)

### **Cognitive impairment in patients with primary and progressive forms of multiple sclerosis**

L. Sokolova (Kiev, Ukraine)

### **Neurofilament light, anti-ganglioside M3 antibody and interleukin 18 in relapsing-remitting and primary progressive multiple sclerosis**

P. Iwanowski (Poznan, Poland)

### **Emotion recognition and its association to quality of life in patients with multiple sclerosis**

M. Grothe (Greifswald, Germany)

## Scientific Programme

**Number needed to treat (NNT) analysis of confirmed disability improvement across multiple sclerosis monoclonal antibody disease modifying agents clinical trials**

D. Kantor (Parkland, United States)

**Modulation of monocytes by bioactive lipid anandamide in multiple sclerosis involves distinct Toll-like receptors**

A. Leuti (Rome, Italy)

**Expression profile of pro-inflammatory cytokines in memory T cells of pediatric demyelinating patients**

S. Saxena (Boston, United States)

**Early activation of proinflammatory cytokines in cerebrospinal fluid of multiple sclerosis patients**

T. Khaybullin (Kazan, Russian Federation)

**Population pharmacokinetic modeling of natalizumab efficacy using body weight as a classification factor for extended interval dosing**

K.K. Muralidharan (Cambridge, United States)

**Peripheral blood CCR5+ effector gamma/delta T cells decreased in multiple sclerosis relapse**

A. Monteiro (Covilha, Portugal)

**Low prevalence of anti-NMO-IgG in Tunisian patients with suspicion of optico-spinal demyelination**

S. Feki (Sfax, Tunisia)

**15:45 - 16:45**

Social Media Session, Hall C

**Google Hangout: Meeting Highlights**

A google hangout broadcast from ECTRIMS with Barts MS researchers sharing highlights from the meeting.

This session is an online session. Visit

[https://www.youtube.com/channel/UCyTAs55E\\_\\_NIUmDeWs66Jeg](https://www.youtube.com/channel/UCyTAs55E__NIUmDeWs66Jeg) to watch.

**Chairs**

A. Thomson (London, United Kingdom)

**15:45 - 16:45**

**ECTRIMS Highlights**

S. Gnanapavan (London, United Kingdom)

D. Baker (London, United Kingdom)

**17:00 - 17:45**

Hot Topic Sessions, Hall A

**Hot Topic 5 B-cell depletion therapy: a panacea for MS?**

**Chairs**

R. Hohlfeld (Munich, Germany)

C. Hemingway (London, United Kingdom)

## Scientific Programme

- 17:00 - 17:15**                      **B-cell mediated pathogenic mechanisms in MS**  
A. Bar-Or (Montreal, Canada)
- 17:15 - 17:30**                      **Clinical trials and role of B-cell depletion therapy in relapsing-remitting MS**  
S. Hauser (San Francisco, United States)
- 17:30 - 17:45**                      **Clinical trials and role of B-cell depletion therapy in progressive MS**  
B. Hemmer (Munich, Germany)
- Hot Topic Sessions, Hall B
- 17:00 - 17:45**                      **Hot Topic 6 Recent advances in imaging MS**
- Chairs**  
P. Matthews (London, United Kingdom)  
M.A. Rocca (Milan, Italy)
- 17:00 - 17:15**                      **Network analysis in MS through in vivo imaging**  
P. Tewarie (Amsterdam, Netherlands)
- 17:15 - 17:30**                      **PET imaging of cellular and molecular abnormalities in MS**  
B. Stankoff (Paris, France)
- 17:30 - 17:40**                      **Distinguishing the brain MRI features of MS, AQP4- and MOG-antibody disease**  
M. Jurynczyk (Oxford, United Kingdom)
- 17:40 - 17:45**                      **Summary**  
P. Matthews (London, United Kingdom)
- Hot Topic Sessions, Hall C
- 17:00 - 17:45**                      **Hot Topic 7 CSF biomarkers can predict the course of MS and response to treatment**
- Chairs**  
T. Olsson (Stockholm, Sweden)  
J. Correale (Buenos Aires, Argentina)
- 17:00 - 17:15**                      **For**  
G. Giovannoni (London, United Kingdom)
- 17:15 - 17:30**                      **CSF biomarkers can predict the course of MS and response to treatment: against**  
A.E. Miller (New York, United States)
- 17:30 - 17:40**                      **High cerebrospinal fluid chitinase-3 like protein 1 levels increase the risk of conversion from radiologically isolated syndrome to clinically definite multiple sclerosis**  
E. Thouvenot (Nîmes, France)

## Scientific Programme

**17:40 - 17:45**

### **Summary**

T. Olsson (Stockholm, Sweden)

**18:00 - 19:00**

Satellite Symposia, Hall A

### **Satellite Symposium - Optimising MS care: daclizumab as a new treatment option**

Supported by Biogen

A case-based exploration of evidence-based decision making in MS, with integrated panel discussion and audience interaction throughout

#### **Chairs**

R. Gold (Bochum, Germany)

**18:00 - 18:10**

#### **Chair's welcome and introduction**

R. Gold (Bochum, Germany)

**18:10 - 18:20**

#### **Modulating IL-2 signalling pathways: a unique therapeutic approach**

R. Martin (Zurich, Switzerland)

**18:20 - 18:30**

#### **Translating the science into medicine: evaluating clinical efficacy**

G. Giovannoni (London, United Kingdom)

**18:30 - 18:40**

#### **Patient monitoring: optimising the approach in practice**

T. Ziemssen (Dresden, Germany)

**18:40 - 18:50**

#### **Considering what matters most: the patient perspective**

E. Havdova (Czech Republic)

**18:50 - 19:00**

#### **Audience Q and A and chair's closing remarks**

**19:15 - 20:15**

Satellite Symposia, Hall A

### **Satellite Symposium - B cell biology in NMOSD: from pathology to innovative therapeutics**

Supported by MedImmune

#### **Chairs**

B.A. Cree (San Francisco, United States)

F. Paul (Berlin, Germany)

**19:15 - 19:30**

#### **B cell basics and the pathogenesis of NMO**

B. Hemmer (Munich, Germany)

**19:30 - 19:45**

#### **Targeting pathogenic B cells and antibodies in NMOSD**

J.L. Bennett (Aurora, United States)

**19:45 - 20:00**

#### **Regulatory B cell immunotherapy for inflammation and autoimmunity**

T. F. Tedder (Durham, United States)

**Scientific Programme**

**20:00 - 20:15**

**Open round table discusson**

## Scientific Programme

**Saturday, 17 September 2016**

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<b>08:30 - 10:00</b>	Parallel Sessions, Hall B <b>Parallel Session 14 Late Breaking News</b> <b>Chairs</b> H.-P. Hartung (Düsseldorf, Germany) S. Dhib Jalbut (New Brunswick, United States)
<b>08:30 - 08:42</b>	<b>Blood neurofilament light chain levels are elevated in multiple sclerosis and correlate with disease activity</b> J. Kuhle (Basel, Switzerland)
<b>08:42 - 08:54</b>	<b>Efficacy and safety of siponimod in secondary progressive multiple sclerosis - results of the placebo controlled, double-blind, Phase III EXPAND study</b> L. Kappos (Basel, Switzerland)
<b>08:54 - 09:06</b>	<b>Comparison of 5-year treatment outcomes between alemtuzumab versus natalizumab, fingolimod and interferon <math>\beta</math>-1a</b> T. Kalincik (Melbourne, Australia)
<b>09:06 - 09:18</b>	<b>Severe vitamin D deficiency and smoking increases the risk of multiple sclerosis and disability accumulation in clinically isolated syndromes</b> M.I. Zuluaga (Barcelona, Spain)
<b>09:18 - 09:30</b>	<b>Fluoxetine in progressive multiple sclerosis (FLUOX-PMS)</b> M. Cambron (Brussels, France)
<b>09:30 - 09:42</b>	<b>Sustained clinically meaningful improvements in walking ability with prolonged-release fampridine: results from the placebo-controlled ENHANCE study</b> J. Hobart (Plymouth, United Kingdom)
<b>09:42 - 09:54</b>	<b>ECTRIMS-EAN clinical practice guideline on pharmacological management of multiple sclerosis</b> S. Otero-Romero (Barcelona, Spain)
<b>10:30 - 12:30</b>	Plenary Sessions, Hall B <b>Plenary Session 2</b> <b>Chairs</b> D. Miller (London, United Kingdom) X. Montalban (Barcelona, Spain)
<b>10:30 - 11:00</b>	<b>Confavreux Lecture: Where do we go from here with imaging in clinical trials for MS?</b> J.S. Wolinsky (Houston, United States)

## **Scientific Programme**

**11:00 - 11:20**

**Scientific highlights**

E. Meinl (Munich, Germany)

**11:20 - 11:40**

**Clinical highlights**

M. Hutchinson (Dublin, Ireland)

**11:40 - 12:25**

**Presentation of selected ECTRIMS poster awards, awards for best ECTRIMS oral presentations by young researchers, awards for best RIMS poster and best RIMS oral presentation, the MSIF award as well announcement of ECTRIMS Honorary Members**

**12:25 - 12:30**

**Welcome to Paris**

C. Lubetzki (Paris, France)