Inflammatory Signatures and Somatic Comorbidity in Psychiatry: Foundations for Precision Immunopsychiatry

2. Course director & faculty

2.1 *Course director*

Prof. Janet L. Cunningham
Professor of Psychiatry and Senior consultant Dept. of Medical Sciences, Clinical Psychiatry
Uppsala University, Sweden
Member: WPA Section on Immunopsychiatry and ECNP NeuroPsychiatry Network

Prof. Dr. Cunningham was born in Quebec, Canada (BSc Microbiology & Immunology, McGill University), She completed medical studies at Uppsala University (2006) and earned a PhD in Endocrine Oncology (2007). Currently Professor/Senior Consultant Psychiatrist at Uppsala University Hospital/Uppsala University, Sweden, and Director of Uppsala Psychiatric Patient Samples. Her research focuses on immunopsychiatry, investigating immunological biomarkers in cerebrospinal fluid and plasma, autoantibodies, and neuroinflammatory mechanisms underlying severe psychiatric disorders. The work integrates psychiatric/somatic care, biomarker discovery, and immunomodulatory therapy trials for treatment-refractory neuropsychiatric conditions.

Course co-director

Prof. Angelos Halaris, MD
Professor of Psychiatry and Chair Emeritus, Loyola University Stritch School of Medicine and Loyola University Medical Center, USA
Chair WPA Section on Immunopsychiatry

Prof. Dr. Halaris, is Professor of Psychiatry and Chair Emeritus at Loyola University Chicago Stritch School of Medicine and Loyola University Medical Center. He chairs the World Psychiatric Association (WPA) Section on Immunopsychiatry, advancing immune-inflammation models in mood disorders. Prof. Halaris has authored extensive publications/books on immune-psychiatric interfaces and won awards for his educational contributions. His 50+ year career pioneered psychoneuroimmunology, focusing on biomarkers (e.g., CRP, IL-1β, kynurenine pathway) for treatment-resistant depression and bipolar disorder. He has conducted RCTs showing anti-inflammatory adjuncts (celecoxib, infliximab) enhance antidepressants in inflammation-high depression.

2.2 *Faculty:*

Prof. Petter Brodin, M.D., Ph.D.
Department of Women's and Children's Health,
Karolinska Institutet
Imperial college London.

Prof. Dr. Brodin is a Physician-Scientist and Professor at Karolinska Institutet, with clinical duties in pediatric rheumatology at Karolinska University Hospital. His research focuses on neonatal immune development, systems immunology, and human-microbiome interactions, with particular expertise in understanding how early-life immune programming relates to chronic inflammatory diseases. He leads work at the intersection of clinical pediatrics and advanced systems immunology, investigating how industrialized environmental exposures contribute to the emergence of barrier diseases — including inflammatory bowel disease, asthma, and eczema — through epithelial barrier dysfunction and dysregulated immune responses to commensal microbes and environmental factors. The Brodin lab also studies immune variation in humans including sex-differences. With extensive experience bridging clinical care and translational research, he is committed to advancing precision medicine in pediatric inflammatory diseases.

Prof. Jenifer Juliette C. Madan, MD, MS
Vice Chair of Research, Psychiatry
Professor, Psychiatry, Pediatrics, Epidemiology & Quantitative Biomedical Data Sciences
Department of Psychiatry, Division of Child and Adolescent Psychiatry
Dartmouth Hitchcock Medical Center
Geisel School of Medicine at Dartmouth

Prof. Dr. Madan is Professor of Psychiatry, Pediatrics, Epidemiology and Quantitative Biomedical Data Sciences at the Geisel School of Medicine at Dartmouth. Dr. Madan is the MPI and Clinical Director of the Dartmouth Children's Environmental Health and Disease Prevention Research Center, Director of the Neuroimmune Psychiatric Disorders Program, and Vice Chair of Research in the Department of Psychiatry. She is board certified in pediatrics and psychiatry and is the founding director of the Neuroimmune Psychiatry program at Dartmouth which aims to provide clinical care and translational research initiatives in infection and inflammation-mediated neuropsychiatric illnesses in children and young adults. Dr. Madan's lab is focused on the relationship between the gut microbiome and neurodevelopmental and neuropsychiatric outcomes in large scale epidemiological studies, translational mechanistic studies, and interventional studies. She leads educational programming for clinicians and in research endeavors in neuroimmune psychiatry across all levels of training.

Jennifer Frankovich, MD, MS
Clinical Professor | Pediatrics – Allergy, Immunology, Rheumatology
Co-Director, Stanford Children's Immune Behavioral Health Clinic
Director, Stanford Immune Behavioral Health Research Program
Stanford University School of Medicine, Palo Alto, CA

Prof. Dr. Frankovich, is Clinical Professor of Pediatrics in Allergy, Immunology, and Rheumatology at Stanford University School of Medicine/Lucile Packard Children's Hospital. She co-directs the Stanford Children's Immune Behavioral Health Clinic and directs its Immune Behavioral Health Research Program, pioneering multidisciplinary care for immune-mediated neuropsychiatric disorders. Board-certified in pediatrics and pediatric rheumatology (Stanford-trained, MS in Clinical Epidemiology), her expertise centers on systemic autoimmune diseases with psychiatric symptoms, especially post-infectious conditions like PANS/PANDAS. Her

research is based on longitudinal clinical data and understanding immunological mechanisms of neuroinflammation in PANS and related disorders.

Livia DE PICKER MD PhD
Assistant Professor of Clinical Immunopsychiatry
University Psychiatric Hospital Campus Duffel, Belgium
University of Antwerp, Belgium
BCNBP President
ECNP Immuno-NeuroPsychiatry Chair
EFPT Alumnus

Prof. Dr. Livia De Picker is a psychiatrist and clinical researcher in immunopsychiatry at the University Psychiatric Hospital Campus Duffel in Belgium. She is also an Assistant Professor of Psychiatry at the University of Antwerp. Within the ECNP, she is a member of the Executive Committee and chairs the Immuno-NeuroPsychiatry network. In Belgium, she serves as the President of the Belgian College of Neuropsychopharmacology and Biological Psychiatry (BCNBP). Her work revolves **at the interface of research, clinical care, and health care policy** – focusing on synergies between these three domains and strategies for translational implementation of evidence-based policy. With twelve years of experience working in the field of Immunopsychiatry research, Livia has become an influential early career clinician-scientist who has been constantly promoting the field of biological psychiatry both in Belgium and Europe. She is leading international collaborative research projects on precision psychiatry and immune-mediated depression.

Assoc Prof. David Fällmar, M.D., Ph.D.
Radiology department, section of Neuroradiology,
Uppsala University Hospital, Uppsala, Sweden

Associate Prof. Dr. Fällmar is a specialist in radiology and a board-certified subspecialist in neuroradiology (EdiNR), and director of studies in neuroradiology at Uppsala University Hospital. He is also an associate professor at Uppsala University, with active research in neurodegeneration, brain PET and CSF dynamic disorders. With a background in cognitive science and neurology, he is also a consultant in several research projects on immunopsychiatry, affective psychiatry and psychology, including studies on brain stimulation. With a focus on clinical usefulness and multimodal diagnosis, much of his work regards advanced clinical workup in selected patients and combines morphological with functional examinations.

3. Overview

Complex psychiatric disorders are sometimes associated with diverse immunological mechanisms, including autoimmune/autoinflammatory disorders, as well as genetic, metabolic, or other immune-mediated conditions. A growing number of cases, however, display autoimmunity and/or neuroinflammation markers in primary psychiatric presentations, opening avenues for novel treatments, but requiring deeper understanding of immunological pathologies. Individuals with neurodevelopmental conditions (e.g., autism spectrum disorder or genetic/metabolic disorders) present particular diagnostic challenges amid emerging immunological vulnerabilities. The key for

early identification lies first in recognizing clinical presentations with red flags for immunological involvement—such as sudden onset, headache, movement disorders, enuresis, or prominent somatic features. Targted evaluations capture and differentiate underlying medical causes, including neurological, metabolic, genetic, infectious, immune (auto-/autoinflammatory, immunodeficiency), or traumatic etiologies.
Diverse immunological mechanisms underpin some psychiatric disorders. Early recognition of these mechanisms through integration with somatic-psychiatric care workflows improve outcomes. Faculty expertise spans multinational frameworks for evaluation (e.g., CSF/radiology interpretation), addressing barriers to early detection and treatment of immune-mediated conditions and guiding other centers

4. Learning Objectives
At course end, participants will:

- Have a conceptual framework for understanding the different immunological mechanisms, phenotypes and immunological vunerabilities in patients with severe mental and/or neurodevelopmental disorders.
- Recognize clinical red flags for immunological etiologies in acute psychiatric presentations, emphasizing clinical signs that help to identify possible immune/infectious triggers.
- Develop language for effective communication and collaboration across medical specialists
- Know when and how to apply the available tools for evaluation of neuroinflammation and autoimmunity including neuroradiology, CSF/blood and gut biomarkers.
- The course will introduce the concepts of systems immunology, microbiomics, and show trial data for early intervention in neuroinflammation/autoimmunity.
- The faculty will present multinational workflow models and strategies to overcome somatic-psychiatric care barriers.

5. Target Audience
Psychiatrists (adult/CAMHS, early-career to senior; emergency/liaison)

Psychologists/psychotherapists in working with severe mental disorders or who have an interest in biological psychiatry.

Unit heads, trainees, integrated care professionals, basic scientists.

6. Detailed Program
Time Topic & Speaker
Moderator - Angelos Halaris
09:00 Introduction to the immune system in psychiatric diseases (Cunningham)
09:15 Low-grade inflammation & immunotherapy in depression (De Picker)
09:40 Gut-brain axis, dysbiosis, neurodevelopment (Madan)
10:00 Genetic disorders with psychiatric presentations & systems immunology (Brodin)
10:20 Identifying autoimmune disease signs and communicating with a reumatologist (Frankovich)

10:40 Discussion, Q&A,
11:00–11:30 Break
11:30 Spinal tap: indications, tests, interpretation (Cunningham)
11:50 Neuroradiology in neuroinflammation (Fällmar)
12:10 Cases illustrating immunopsychiatry team work (All)
12:45 Discussion, Q&A, feedback (All)
13:00 Session closed

7. Rationale for Faculty

This team provides a multidiciplinaty perspective for identifying and managing severe mental disorders with underlying immunological mechanisms. The team provides clinical expertise with pediatric/adult immunology, neuroimaging, microbiomics, rheumatology, and policy—delivering practice-oriented, international insights.

8. Materials for Participants

Language and conceptual framwork for understanding immunological contributions in pychiatric diseases
Checklists and decision trees for clinical work-up and escalation
Bibliography, practical resources, post-course slide deck

9. Conflicts of Interest
Faculty declare none.

10. References

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