

Psychiatry and Neuroscience Seminar Series 2026



Dr. Ida Nilsson

**Center for Molecular Medicine (CMM)
Karolinska Institute - Sweden**

(Host O Viltart et V Tolle)

Stem Cell-Based Approach Towards Understanding the Neurobiology of Anorexia Nervosa

Friday, November 6th, 2026, noon

Room D. Levy, 102 rue de la santé - 75014 Paris

Anorexia nervosa (AN) is the psychiatric disorder with the highest mortality. Around 60% of the background is attributed to genetics and significant negative genetic correlations with several metabolic traits including BMI are established. Indeed, a puzzling feature of AN is the paradoxical physiological response to negative energy balance, leading to continued loss of and maintained low body weight. Intricate neuronal circuits originating in the hypothalamus are fundamental for proper appetite signaling and ensuring our energetic needs, and accumulating reports support microglia located at the vicinity of the hypothalamic circuits as crucial in regulating energy balance.

We hypothesize that a genetic vulnerability in AN resides with a dysfunction of hypothalamic microglia, resulting in aberrant signaling of hypothalamic circuits regulating food intake, and maintained negative energy balance. We intend to identify neurobiological mechanisms and define drug targets for sustainable renourishment, weight gain as well as maintenance.

By establishing and utilizing patient-derived stem cell (iPSC) models, we explicate the function of microglia and their interaction with hypothalamic neurons, including microglia-driven synaptic pruning, in AN. Among others, we reveal reduced microglia engulfment of hypothalamic-, but not cortical synapses, in AN. We show that the phagocytic capacity of AN microglia, contrary to healthy microglia is non-responsive to GLP1 stimulation.

Our results indicate that deviant communication between microglia and hypothalamic neurons are involved in maintenance of starvation in AN. By further explicating these interactions we may define new drug targets for the treatment of the disorder.

Stay tuned!