

# CONFERENCES

**Lundi 24 juin 2024 à 11h00 (IPMC)**

**Barbara BARDONI (IPMC) invite**

**Dr. Ilse GANTOIS**

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## « Repurposing of drugs as a treatment for Autism Spectrum Disorder »

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by core symptoms of persistent deficits in social communication and interaction, and repetitive behavior. Worldwide prevalence ranges between 1-2 %, with an incidence rate 4 times higher in males than females. Unfortunately, about 40% of children with ASD do not respond to standard behavioral and medical treatments.

For the moment we are focusing on mouse models of Fragile X syndrome (FXS) and Phelan McDermid Syndrome (PMD), both males and females. These 2 neurodevelopmental disorders have a very high incidence of ASD. We are studying the therapeutic effects of metformin and cannabidiol (CBD) for treating symptoms associated with ASD at a behavioural level. In addition, ERK/MAPK and mTOR pathways, involved in controlling mRNA translation, are overactivated in several brain areas of these mouse models. Metformin treatment, an inhibitor of these pathways, previously showed a high efficacy in correcting pathway signaling and behavior in fragile X syndrome (FXS) fly and mouse models. CBD is a safe and non-mind altering plant based cannabinoid proposed to relieve several psychiatric illnesses including psychosis, addiction, obsessive compulsion, and anxiety related disorders. There is a high interest for CBD's potential for treating ASD associated symptoms; however, the information on how CBD works in the body, its effectiveness, dosing regime and clinical information remains limited.

Our work broadens the understanding of the effects of metformin and CBD on ASD and potentially supports the implementation of clinical strategies to alleviate symptoms associated with these neurological disorders in both sexes.

