



Département de psychiatrie
Centre de neurosciences psychiatriques
Site de Cery
CH-1008 Prilly - Lausanne

Centre de Neurosciences Psychiatriques

CNP SEMINAR

ANNOUNCEMENT

Tuesday, May 7, 2019, 14:00

"The Brain-Immune-Gut Axis: The new "BIG" idea in Brain Sciences and Psychiatry"

Prof Robert Yolken, MD

Director, Stanley Neurovirology Laboratory
Ted and Vada Stanley Distinguished Professor of Pediatrics
Johns Hopkins School of Medicine

Invited by Kim Do Cuénod
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**Salle de séminaires 1^{er} étage CNP
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Recent studies have established the central role of inflammation in the pathogenesis of human neuropsychiatric disorders. However, until recently the genesis of this inflammation has been unclear. We have identified the gastrointestinal tract as the source inflammation in many individuals with neuropsychiatric disorders such as schizophrenia, bipolar disorder and major depression as well as in individuals who have undergone suicide attempts. In many cases, gastrointestinal inflammation is associated with alterations in the microbial composition of mucosal surfaces, collectively characterized as the microbiome. The gastrointestinal microbiome itself exerts an effect on the brain through a number of anatomic and immune mediated pathways characterized as the brain-immune-gut axis.

The role of gastrointestinal inflammation and the brain-immune-gut axis as major pathogenic components of human neuropsychiatric disorders is supported by a number of epidemiological studies. These include investigations documenting the effect of dietary nitrates and antibiotic exposure on disease risk, associations which are also supported by studies in animal models. Furthermore, we have documented that the administration of probiotic microorganisms can modulate inflammation in individuals with schizophrenia and can prevent relapse in individuals hospitalized with acute mania. An increased understanding of the pathogenic mechanisms of the brain-immune-gut axis will lead to novel low toxicity methods for the prevention and treatment of human neuropsychiatric disorders and reduce the enormous toll that these disorders take on patients, their families, and society.

Selected publications:

- 1) **Gastroenterology issues in schizophrenia: why the gut matters.** [Severance EG](#)¹, [Prandovszky E](#), [Castiglione J](#), [Yolken RH](#). *Curr Psychiatry Rep*. 2015 May;17(5):27. doi: 10.1007/s11920-015-0574-0
- 2) **From Infection to the Microbiome: An Evolving Role of Microbes in Schizophrenia.** [Severance EG](#)^{1,2}, [Yolken RH](#)³. *Curr Top Behav Neurosci*. 2019 Mar 8. doi: 10.1007/7854_2018_84. [Epub ahead of print]
- 3) **Nitrated meat products are associated with mania in humans and altered behavior and brain gene expression in rats.** [Khambadkone SG](#)^{1,2}, [Cordner ZA](#)¹, [Dickerson F](#)³, [Severance EG](#)⁴, [Prandovszky E](#)⁴, [Pletnikov M](#)¹, [Xiao J](#)⁴, [Li Y](#)⁴, [Boersma GJ](#)^{1,5}, [Talbot CC Jr](#)⁶, [Campbell WW](#)⁷, [Wright CS](#)⁷, [Siple CE](#)⁸, [Moran TH](#)^{1,2}, [Tamashiro KL](#)^{1,2}, [Yolken RH](#)⁹. *Mol Psychiatry*. 2018 Jul 18. doi: 10.1038/s41380-018-0105-6. [Epub ahead of print].
- 4) **Adjunctive probiotic microorganisms to prevent rehospitalization in patients with acute mania: A randomized controlled trial.** [Dickerson F](#), [Adamos M](#), [Katsafanas E](#), [Khushalani S](#), [Origoni A](#), [Savage C](#), [Schweinfurth L](#), [Stallings C](#), [Sweeney K](#), [Goga J](#), [Yolken RH](#). *Bipolar Disord*. 2018 Nov;20(7):614-621. doi: 10.1111/bdi.12652. Epub 2018 Apr 25.