



SOCIETAS PHYSIOLOGICAE HOLMIENSIS

FYSIOLOGFÖRENINGEN

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**Nobel Forum
Karolinska Institutet, Solna**

Gut (Microbiome) Feelings: Brain-Body interactions across the Lifespan



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Recent evidence suggests that the communication between the microbiome and the brain along the gut–brain axis has gained prominence as a potential tractable target to modulate brain health. Over the past two decades it has been shown that the microbiota and the brain communicate with each other via various routes including the immune system, the vagus nerve and the enteric nervous system and microbial metabolites such as short-chain fatty acids, branched chain amino acids, and peptidoglycans. Many factors can influence microbiota composition in early life, including infection, mode of birth delivery, use of antibiotic medications, the nature of nutritional provision, environmental stressors, and host genetics. At the other extreme of life, microbial diversity diminishes with aging. Stress, in particular, can significantly impact the microbiota–gut–brain axis at all stages of life. Animal models have been paramount in linking the regulation of fundamental neural processes, such as neurogenesis and myelination, to microbiome activation of microglia. Moreover, translational human studies are ongoing and will greatly enhance the field. Future studies will focus on understanding the causal mechanisms underlying the microbiota–gut–brain axis and attempt to elucidate microbial-based intervention and therapeutic strategies for neuropsychiatric disorders. Moreover, dietary factors are being harnessed to alter gut–brain signalling and a diet–microbiota–gut–brain has been proposed that underpins health and well-being.

Host: *Tomas Hökfelt*

Welcome!