# SEMINAR

## ALL ARE WELCOME

TEMASEK LIFESCIENCES LABORATORY

**17 January 2017 (Tuesday), 11am**
**The Auditorium (Level 1)**
**Hosted by: Dr Henning Seedorf**

# The microbiome and ageing; friend or foe?

**Prof Sven Pettersson**
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Prof Pettersson is an MD, PhD graduated from Umeå University in Sweden. After a post doctorial training with Dr Michael Neuberger as mentor, LMB, Cambridge, UK (1987-1990), he was recruited to Karolinska Institutet (KI) in 1991. In 2000 he was appointed as professor in the field of host-microbe interactions at KI. His overall research interest is to understand mechanisms by which gut microbiota support host physiology in mammals with a strong focus on energy demanding organs like brain and muscle. For his work on mammalian gene expression and microbe-host communication, he has received numerous prizes and awards. Since 2014 he is appointed as Professor with Lee Kong Chian School of Medicine (LKC), NTU, Singapore and affiliated with Singapore Centre on Environmental Life Sciences Engineering (SCELCE). Since June 2015 is also a CIFAR fellow - The Canadian Institute of Advanced Research (CIFAR). .

At birth there is a vertical transmission of microbes from the Dame to the offsprin which initiates a rapid postnatal microbial colonization that elicits an array of metabolic trajectories that enables the microbiome to influence on host physiology including growth, repair and behavior. The host reciprocates by launching a panel of largely unknown host signals to modulate the expanding microbiome. This bilateral cross talk is presumed to be fully developed around adolescence, by the formation of an adult microbiome that together with its host forms the Holobiont. Diet, locomotion, behavior and immunity are among the factors that will regulate the symbiosis of the Holobiont throughout life. In my lecture, I will present data demonstrating the existence of a microbiome - muscle axis which regulate muscle mass and thus energy homeostasis. In addition, I will also present evidence of unexpected and surprising effects that is mediated by the microbiome of an old Holobiont, on host metabolic organ and neurogenesis. Our findings will be discussed in context of an inter organ cross talk within the Holobiont relevant for our understanding on mechanisms underlying "healthy ageing".

**Recent Publications:**

1. Host-microbiome interactions: the aryl hydrocarbon receptor and the central nervous system. Lee HU, McPherson ZE, Tan B, Korecka A, **Pettersson S**.J Mol Med (Berl). 2016 Nov 17.
2. Hepatic circadian clock oscillators and nuclear receptors integrate microbiome-derived signals. Montagner A, Korecka A, Polizzi A, Lippi Y, Blum Y, Canlet C, Tremblay-Franco M, Gautier-Stein A, Burcelin R, Yen YC, Je HS, Al-Asmakh M, Mithieux G, Arulampalam V, Lagarrigue S, Guillou H, **Pettersson S**, Wahli W. Sci Rep. 2016 Feb 16;6:20127. doi: 10.1038/srep20127.
3. Microbiota controls the homeostasis of glial cells in the gut lamina propria. Kabouridis PS, Lasrado R, McCallum S, Chng SH, Snippert HJ, Clevers H, **Pettersson S**, Pachnis V.Neuron. 2015 Jan 21;85(2):289-95. doi: 10.1016/j.neuron.2014.12.037