



University  
of Basel

BIOZENTRUM

The Center for  
Molecular Life Sciences

# Biozentrum Lectures

We seek him here, we seek him there...  
On the elusive pericyte and its many roles in the  
blood micro-vasculature

## Christer Betsholtz

Professor at Uppsala University and at  
Karolinska Institutet Stockholm,  
Sweden

Monday,  
October 16, 2017  
5:15 pm



**Christer Betsholtz** is professor of vascular and tumor biology at Uppsala University and at Karolinska Institutet Stockholm, where he also serves as Director for the Integrated Cardio-Metabolic Center. He is member of EMBO, Academia Europaea, the Royal Swedish Academy of Sciences, and the Nobel Assembly at Karolinska Institutet that selects recipients of the Nobel Prize in Physiology or Medicine. Betsholtz entered the vascular biology and angiogenesis research field through his studies on platelet-derived growth factors and their roles in developmental processes. One of his current focuses is pericytes and their roles in the blood-brain barrier and diseases of the central nervous system.

Christer Betsholtz:

## We seek him here, we seek him there... On the elusive pericyte and its many roles in the blood micro-vasculature

Described for the first time already in 1871, the micro-vascular pericyte remained in the shadows for almost 130 years, known only as an anonymous cell of the micro-vascular wall, visible by microscopy but without distinctive features such as molecular markers or functions.

The originally proposed function – contractility and vessel constriction – was controversial early on and remains so even today. The past 20 years have, however, witnessed an explosion of interest in pericytes. These cells are linked to a number of important physiological and pathophysiological roles in common, as well as rare diseases. However, some caution is warranted: Pericyte identification in tissues remains problematic due to a paucity of defining markers. Thus, there is currently considerable disagreement about how pericytes should be defined, where they reside, how heterogeneous they are, and what they do.

In this perspective, we need a new knowledge base for micro-vascular biology in general, and for pericytes in particular. In this lecture, I will show results from our recent study in which we have applied single cell RNA sequencing to define the major vascular and vessel-associated cell types of the brain and lung. In addition to providing cell type and subtype definitions based on genome-wide quantitative transcriptional information, our data also reveal new insights into the arterio-venous zonation and organotypicity of vascular cell, as well as the identification and definition of hitherto unrecognized vascular cell types.

October 16, 2017, 5:15 pm  
Hörsaal 1, Pharmazentrum  
Klingelbergstrasse 50/70, Basel

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