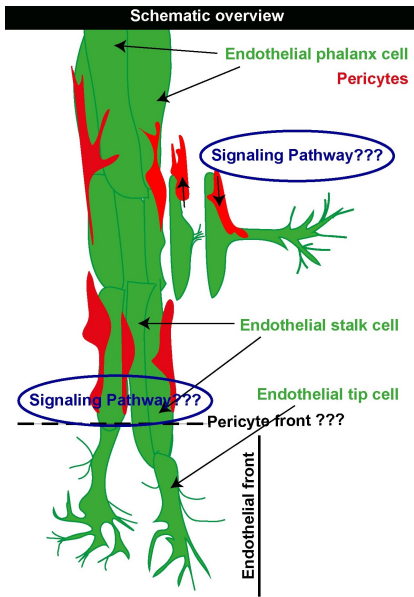


PhD Project Description

School/Department:	Department of Pathology Erasmus MC
Supervisor information:	<ul style="list-style-type: none"> • Prof dr Adriaan B. Houtsmuller • Assoc. Prof dr Timo L.M. ten Hagen • Dr. Ann L.B. Seynhaeve • Email: a.houtsmuller@erasmusmc.nl t.l.m.tenhagen@erasmusmc.nl a.seynhaeve@erasmusmc.nl • Website: www.erasmusmc.nl , www.molmed.nl • Grants: Mrace • Most important publications regarding this program: <ol style="list-style-type: none"> 1) Biol Proced Online. 2020 Feb 1;22:3. doi: 10.1186/s12575-019-0114-0 2) Sci Rep. 2018 Jun 25;8(1):9596. doi: 10.1038/s41598-018-27943-8. 3) J Vis Exp. 2018 Jan 19;(131):55115. doi: 10.3791/55115. 4) Cancer Res. 2007 Oct 1;67(19):9455-62. doi: 10.1158/0008-5472.CAN-07-1599.
Project Title:	<i>Investigating synchronization and impact of pericyte interacting with endothelial cells during angiogenesis.</i>
Abstract:	<p>Pericytes have long been neglected in research and were even believed to be absent in the tumor-associated vasculature. These cells are closely associated with endothelial cells and are important to form a functional blood conducting network in normal as well as in tumor development. While presence of pericytes has been documented in the past, and is reviewed by Simms in 1986, focused investigation into these cells is more recent as well as therapeutic recognition. Tumors need vessels to grow and, as we observed that tumor-associated pericytes are differently expressed in various tumor types, the presence or absences of pericytes can have implications for tumor development and therapy. We recently observed that pericyte motion, along different vascular tubes (i.e. growing, newly formed and established), proceeds via a clear synchronized pattern. At the position of an emerging endothelial sprout, the nearby pericytes are moving away along the existing tube to later re-emerge when the endothelial sprout moves further into the tissue. Also, pericytes form a front at a specified distance from the migrating endothelial tip cell implying a strong forward-driving synchronized communication between pericytes and adjacent endothelial stalk cells. Next to that, velocity seemed to be determined by a pericyte – endothelial cell synchronized interacting signal. Many questions are still not completely answered and proven. Where do angiogenic pericytes originate from? What determines interaction of pericytes with endothelial cells and what molecular and/or biological pathways drives these cells? How important is this interaction in the establishment of a functional vasculature and in successful anti-cancer therapy. What are the consequences when this interaction is lost? We want to explore the biological implications of pericyte - endothelial cell interaction in more detail and investigate the consequences when communication between pericytes and endothelial cells is lost. As pro- as well as anti-vascular processes are important in cancer treatment a better understanding of the close relationship between pericytes and endothelial cells is of critical value.</p> <p><i>Schematic overview of the research direction. We want to investigate the biological behavior and genetic signaling of pericytes interacting with endothelial cells in angiogenesis and tumor therapy.</i></p> 
Requirements of candidate:	<ul style="list-style-type: none"> • We are looking for a highly motivated, hardworking student to join our very international team. Our strength is in using team work to tackle large scientific questions and thus requires a student with good communication skills. As mice models are a major part of the experimental set-up affinity to work with animals is required. • Master degree or MD • Scholarship that will, at least, cover subsistence allowance and international air plane ticket (we could help with the scientific part of your scholarship proposal)

Erasmus MC, ranked world no. 32 for [Clinical Medicine US News 2020](#) no. 30 [Nature Index for Biomedical Sciences 2019](#)

PhD Project Description

	<ul style="list-style-type: none">English language requirement: <i>English speaking countries & Netherlands:</i> no requirement <i>Other countries:</i> IELTS 7.0 (<i>min 6.0 for all subs</i>), TOEFL 100 (<i>min 20 for all subs</i>)
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Application requirements & Deadlines:

<https://www.eur.nl/en/about-eur/erasmus-university-china-centre/csc-scholarship>

Erasmus MC, ranked world

** No.32 for Clinical Medicine US News 2020:*

<https://www.usnews.com/education/best-global-universities/clinical-medicine?page=3>

** No. 30 Nature Index for Biomedical Sciences 2019:*

<https://www.natureindex.com/supplements/nature-index-2019-biomedical-sciences/tables/healthcare>