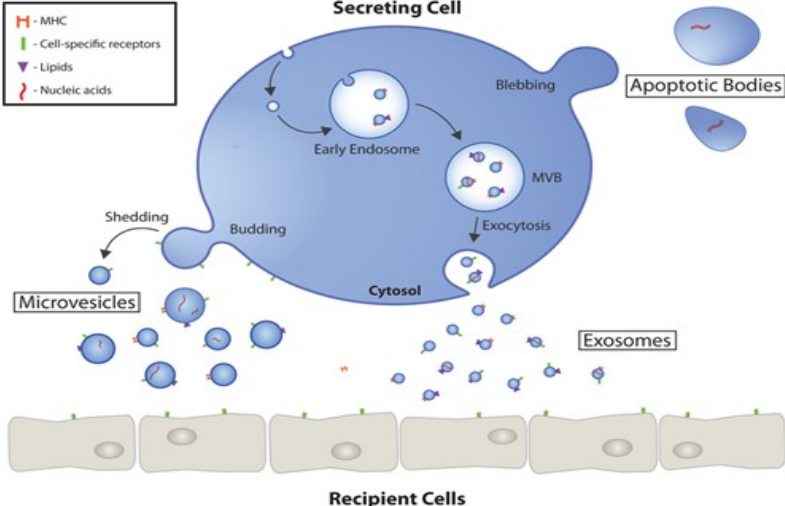


## PhD Project Description

<b>School/Department:</b>	<b>Department of Internal Medicine, Erasmus MC</b>
<b>Project Title:</b>	<b><i>Exploiting the message from the kidney: the value of extracellular vesicles in transplant rejection</i></b>
<b>Supervisor information:</b>	<p>Email: <a href="mailto:c.c.baan@erasmusmc.nl">c.c.baan@erasmusmc.nl</a>, WeChat: carla baan</p> <p><b>Website:</b>  <a href="http://www.rotterdamtransplantationlab.nl">www.rotterdamtransplantationlab.nl</a>  <a href="https://doi.org/10.1186/s13147-020-00500-0">3;11:1332</a>. IF 5.0  <a href="https://www.linkedin.com/pub/carla-baan/8/a19/960">http://nl.linkedin.com/pub/carla-baan/8/a19/960</a>  <a href="http://www.erasmusmc.nl">www.erasmusmc.nl</a>                      IF 5.0</p> <p><b>Personal Grants:</b>  <a href="#">2538(20)30968-6</a>. IF 8.4                      2019, Dutch Kidney Foundation                      2018, Astallas Pharma  <a href="#">e111</a>. IF 4.5                      2017, Dutch Kidney Foundation                      IF 2.4                      2016, Lundbeck Foundation Denmark</p> <p><b>Most important publications:</b>  <a href="#">van der Zwan M, et al. Front Immunol. 2020 Jul 3;11:1332</a>. IF 5.0  <a href="#">Niu Q, et al. Front Immunol. 2020 Aug 28;11:1972</a>. IF 5.0  <a href="#">van der Zwan M, et al. Drugs. 2020 Jan;80(1):33-46</a>. IF 6.2  <a href="#">Shankar AS, et al. Kidney Int 2020Sep 9:S0085-2538(20)30968-6</a>. IF 8.4  <a href="#">Snijders MLH, et al. Transplantation. 2020 Mar 6</a>. IF 4.5  <a href="#">Woud WW, et al. Transplantation 2019 May;103(5):e110-e111</a>. IF 4.5  <a href="#">Verhoeven JGHP et al. Ther Drug Monit. 2018;40(5):515-525</a>. IF 4.5  <a href="#">de Leur K, et al. Front Immunol. 2017;8:306</a>. IF 6.5  <a href="#">Gonçalves FDC, et al. Sci Rep. 2017;7:12100</a>. IF 4.1</p>
<b>Abstract:</b>	<p>Worldwide, approximately 80.000 kidney transplantations are performed annually. Without a close match, organ transplants will be rejected, and immune competent cells like T cells will attack the new organ. Rejection occurs in up to 25% of cases, but the reasons for rejection are still largely unknown. The discovery that extracellular vesicles participate in the transfer of signaling information between eukaryotic cells and that they readily cross cell walls is a boon to hopes in gaining insight into the molecular and cellular mechanisms driving this response. <b>We propose the novel concept that donor organ released extracellular vesicles present a way for recipient immune cells to initiate the transplant rejection process.</b> To test this, a novel ex vivo platform will be developed to decipher the mechanisms that govern targeted delivery of extracellular vesicle cargo to immune cells. Extracellular vesicles are submicron membrane vesicles that are released by all human cells and transport cell-derived molecules to other cells, changing their phenotype and function. In organ transplantation, donor extracellular vesicles carry and present foreign antigens including the immune activating proteins that interact with recipient antigen presenting cells and sets off the T cell dominated immune response. Technological advances in ex vivo tissue engineering systems, imaging technologies and omics now facilitate the study of i. how donor kidney-extracellular vesicles interact with recipient antigen presenting cells, ii. which molecules are involved and iii. by what means we can interfere in this reaction. This study delivers new knowledge about immune activating mechanisms that are also of importance in auto-immunity, cancer and infectious disease.</p> 

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

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<b>Requirements of candidate:</b>	<ul style="list-style-type: none"><li>• 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.</li><li>• Master degree or MD</li><li>• Scholarship that will, at least, cover subsistence allowance and international air plane ticket (we could help with the scientific part of your scholarship proposal)</li><li>• English language requirement:</li><li>• <i>English speaking countries &amp; Netherlands:</i> no requirement</li><li>• <i>Other countries:</i> IELTS 7.0 (<i>min 6.0 for all subs</i>), TOEFL 100 (<i>min 20 for all subs</i>)</li></ul>
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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>