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## The ins and outs of ligand binding to CCR2

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### Citation

Zweemer, A. J. M. (2014, November 20). *The ins and outs of ligand binding to CCR2*. Retrieved from <https://hdl.handle.net/1887/29763>

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**Author:** Zweemer, Annelien

**Title:** The ins and outs of ligand binding to CCR2

**Issue Date:** 2014-11-20

## **List of publications**



Vilums M, Zweemer AJM, Dekkers S, Askar Y, de Vries H, Saunders J, Stamos D, Brussee J, Heitman LH, IJzerman AP. *Design and Synthesis of Novel Small Molecule CCR2 Antagonists: Evaluation of 4-Aminopiperidine Derivatives*. Manuscript in preparation.

Vilums M, Zweemer AJM, Barmare F, van der Gracht AMF, Bleeker DCT, Yu Z, de Vries H, Gross R, Clemens J, Krenitsky P, Brussee J, Stamos D, Saunders J, Heitman LH, IJzerman AP. *When Structure–Affinity Relationships Meet Structure–Kinetics Relationships: 3-((Inden-1-yl)amino)-1-isopropyl-cyclopentane-1-carboxamides as CCR2 Antagonist*. Manuscript in preparation.

Zweemer AJM, Hammerl D, Massink A, Veenhuizen M, Lenselink EB, de Vries H, Heitman LH, IJzerman AP. *Allosteric modulation of the chemokine receptor CCR2 by amiloride analogues and sodium ions*. Manuscript in preparation.

Zweemer AJM, Bunnik J, Veenhuizen M, Miraglia F, Lenselink EB, Vilums M, de Vries H, Gibert A, Thiele S, Rosenkilde MM, IJzerman AP, Heitman LH. *Discovery and mapping of an intracellular antagonist binding site at the chemokine receptor CCR2*, Mol Pharmacol, 86(4), 2014, 358-368.

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Vilums M\*, Zweemer AJM\*, Yu Z, de Vries H, Gross R, Krenitsky P, Clemens J, Barmare F, Brussee H, Stamos D, Saunders J, Heitman LH, IJzerman AP. *Structure-kinetics relationships – an overlooked parameter in hit-to-lead optimization: a case of cyclopentylamines as CCR2 antagonists*, J Med Chem, 56(19), 2013, 7706-7714. \*these authors contributed equally

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Sims AH\*, Zweemer AJM\*, Nagumo Y, Faratian D, Muir M, Dodds M, Um I, Kay C, Hasmann M, Harrison DJ, Langdon SP. *Defining the molecular response to trastuzumab, pertuzumab and combination therapy in ovarian cancer*, Br J Cancer, 106(11), 2012, 1779-1789. \*these authors contributed equally

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Faratian D, Zweemer AJM, Nagumo Y, Sims AH, Muir M, Dodds M, Mullen P, Um I, Kay C, Hasmann M, Harrison DJ, Langdon SP. *Trastuzumab and pertuzumab produce changes in morphology and estrogen receptor signaling in ovarian cancer xenografts revealing new treatment strategies*, Clin Cancer Res, 17(13), 2011, 4451-4461.

Heitman LH, Göblyös A, Zweemer AJM, Bakker R, Mulder-Krieger T, van Veldhoven JP, de Vries H, Brussee J, IJzerman AP. *A series of 2,4-disubstituted quinolines as a new class of allosteric enhancers of the adenosine A<sub>3</sub> receptor*, J Med Chem, 52(4), 2009, 926-931.

Heitman LH, van Veldhoven JP, Zweemer AJM, Ye K, Brussee J, IJzerman AP. *False positives in a reporter gene assay: identification and synthesis of substituted N-pyridin-2-ylbenzamides as competitive inhibitors of firefly luciferase*, J Med Chem, 51(15), 2008, 4724-4729.

# **Curriculum Vitae**

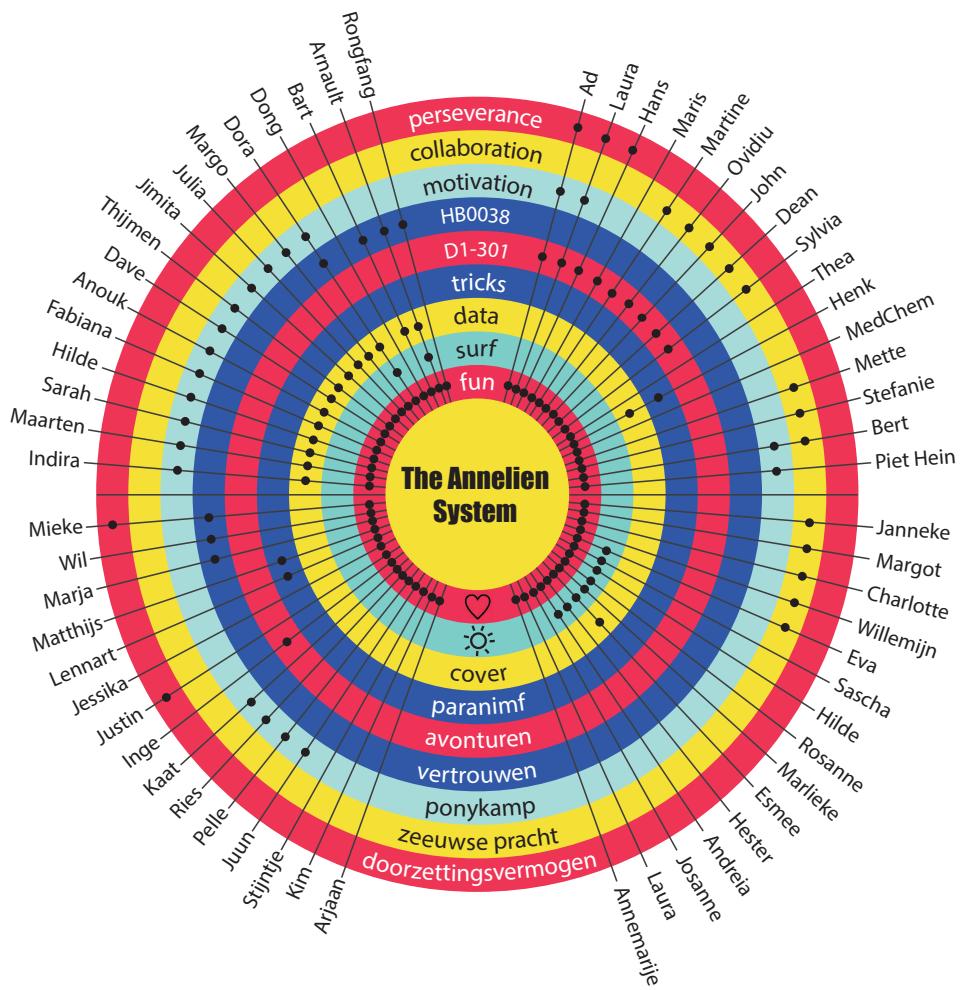


Annelien Zweemer was born in Goes, the Netherlands, on September 8<sup>th</sup> 1985. After graduating from high school at the Pontes College in Goes, she moved to Leiden in 2003 to study Bio-Pharmaceutical Sciences at Leiden University. During her degree she performed two research internships at the Division of Medicinal Chemistry, under supervision of Dr. Laura Heitman and Prof. Ad IJzerman. Her work on allosteric modulators for the adenosine A<sub>3</sub> receptor was awarded the Suzanne Hovinga award for the best thesis of Bio-Pharmaceutical and Biomedical Sciences at Leiden University in 2008. Subsequently she moved to Edinburgh, UK, to perform a third internship at the Breakthrough Breast Cancer Research Unit under supervision of Dr. Simon Langdon. She studied the effect of antibody therapy for ovarian cancer, and was awarded the S.E. De Jong prize for the best thesis in Pharmacology at Leiden University in 2009. In that same year she finished her MSc. degree *cum laude*.

In 2010, Annelien started her PhD study at Leiden University within the Division of Medicinal Chemistry, under supervision of Dr. Laura Heitman and Prof. Ad IJzerman. This research was part of the TI-Pharma initiative “Target residence time in translational drug research: the CCR2 chemokine receptor as a case in point” (Project number D1-301), in collaboration with Vertex Pharmaceuticals (San Diego, CA, USA) and the Vrije Universiteit Amsterdam (Amsterdam, The Netherlands). Throughout her PhD studies she presented work described in this thesis at numerous national and international conferences. In 2010 she won the NVF presentation award at the FIGON Dutch Medicines Days in Lunteren. In 2013 she was awarded the 1<sup>st</sup> poster prize at the LACDR Spring Symposium in Leiden, the 1<sup>st</sup> poster prize at the TI Pharma Spring Symposium in Utrecht and the 3<sup>rd</sup> poster prize during the FIGON Dutch Medicine Days in Ede. Annelien is currently working as a postdoctoral researcher in the department of Biological Engineering, headed by Prof. Douglas Lauffenburger, at Massachusetts Institute of Technology in Cambridge, MA.



## **Acknowledgements**



Throughout the past four years I have met, learned from, and collaborated with many different people. I am very grateful for all of your contributions; you kept the system running and enabled the realization of this thesis.

Een groot deel van het werk uit dit proefschrift is uit handen gekomen van het team aan studenten dat mij de afgelopen jaren heeft vergezeld. Bedankt voor jullie inzet, ideeën en energie! Henk, jouw vakkennis, precisie en geduld waren onmisbaar voor het slagen van dit project. Ik heb genoten van onze samenwerking in de afgelopen jaren. Maris, thank you for being the most honest, supportive and ironic co-PhD fellow I could have wished for. All other (ex) colleagues and students from Medicinal Chemistry have been equally important for the great time I've had inside and outside the lab; keep up the spirit!

I would like to thank TI Pharma for enabling this research project in collaboration with Vertex Pharmaceuticals and the Vrije Universiteit Amsterdam. Dean, John and Sylvia, without Vertex' efforts to provide me two great radioligands this thesis would not have existed. In addition, I very much appreciate all the helpful discussions, your drive, and the excellent meetings in San Diego. Martine and Ovidiu, many thanks for being my walking chemokine encyclopedia. With all your helpful comments I was able to smoothly set up the assays in Leiden. Mette and Stefanie, thank you very much for the pleasant and fruitful collaboration that resulted in the work described in Chapter 4. Dit proefschrift draait om de *ins*, die alleen in waarde kunnen toenemen door de juiste *outs*: Esmee, heel erg bedankt voor het ontwerp van de cover!

Laura, mede door jouw aanstekelijke enthousiasme ben ik aan dit avontuur begonnen, en heb ik het tot een goed einde weten te brengen. Ik ben heel blij dat je mij de mogelijkheid hebt gegeven om de student met de langste verblijftijd op de 'LH' receptor te worden. Ad, sinds ik in 2006 voet zette binnen de afdeling heb ik veel mogen leren, proberen en creëren onder jouw toeziend oog. Jouw kennis, betrokkenheid, kritische blik en droge humor waardeer ik enorm. Ik kijk terug op een prachtige eerste reis door de wondere wereld van de wetenschap.

Tot slot, mijn lieve vrienden en familie, ik ben ongelofelijk trots en gelukkig met jullie allen om mij heen. *Als er liefde is, is er geen ver meer en geen dichtbij.*

