Apoptotic cell clearance by macrophages and dendritic cells : immunoregulation in the context of innate immunity

Xu, W.

Acknowledgements

I would not have been able to complete this thesis without the direct and indirect help and contributions of many people. I thank all the people from the D3-P floor, particularly my colleagues from the department of Nephrology, for creating a pleasant work environment for me and to help me to integrate into Dutch life such as Dutch language and food. I am indebted to Anja Roos for her enthusiastic daily supervision during the first two years of my PhD studies. I thank Nicole Schlagwein for her excellent technical assistance and many other ways of support. I also thank my fellow AIO's for the fruitful discussions, help and advice during the past 4 years. Furthermore, I want express my warm appreciation to the following bachelor /master students with whom I have worked: Chantal Mutsaers, Peter Thijssen and Xiwen Zhao.

It is a unique experience to live in a foreign country for a number of years. I thank my friends here for creating a great and joyful time together. In this regard, I especially thank the lovely family: Weixiang, Lin and Haoran (Alex).

Finally, I am very much indebted to my family for being too far away to take care of them. I thank my parents, my brother and sister for their endless support. Also, I will never forget the help from my father-in-law, brothers-in-law and sisters-in-law. I thank my uncle and aunt for providing me the possibility to come to the Netherlands. Great thanks to my wife Aiying for her love and company, and also to our lovely son Yichen (Jimmy) for his presence during the time I worked on my thesis.

Thanks Leiden, it was great to be here and for the many joyful moments.

Curriculum vitae

Wei Xu was born on Nov. 6th 1976, in Zhangjiagang city, P.R. China. He went to Nanjing University of Traditional Chinese Medicine in 1994 and obtained his Bachelor Degree of Medicine in 1999. He was then appointed as a resident at Zhanjiagang Traditional Hospital. From 2001 to 2003, he was enrolled as one of the first international students of the Master program in Biomedical Sciences at the Faculty of Medicine of the Leiden University. During that period, he conducted two practical training periods at the Dept. of Pathology (Dr. J.J. Baelde and Dr. E. de Heer) and at the Dept. of Hematology (Dr. W.A. Noort and Prof. Dr. W.E. Fibbe), the Leiden University Medical Center (LUMC). After completion of his Master degree, he started his PhD program at the Dept. of Nephrology, LUMC, in July 2003, under the supervisions of Dr. C. van Kooten and Prof. Dr. M.R. Daha. He received the Chinese Government Award for Outstanding Self-Financed Students Abroad (2006) from the Chinese Scholarship Council /Ministry of Education. Starting from December 2007, he will work as a postdoctoral fellow at the Baylor Institute for Immunology Research (Dallas, USA), under the supervision of Prof. Dr. J. Banchereau.

Publications

1. **Xu W**, Baelde JJ, Lagaaij EL, de Heer E, Paul LC, and Bruijn JA. Endothelial cell chimerism after renal transplantation in a rat model. *Transplantation*. 2002. 74 (9):1316-20.
2. Nauta AJ, Castellano G, **Xu W**, Woltman AM, Borrias MC, Daha MR, van Kooten C, Roos A. Opsonization with C1q and MBL targets apoptotic cells to dendritic cells. *J. Immunol.* 2004. 173 (5):3044-50.
3. Roos A, **Xu W**, Castellano G, Nauta AJ, Garred P, Daha MR, van Kooten C. A pivotal role for innate immunity in the clearance of apoptotic cells. *Eur. J. Immunol.* 2004. 34 (4): 921-9.
4. **Xu W**, Roos A, Daha MR, van Kooten C. Dendritic cells and macrophages in the handling of dying cells. *Immunobiology,* 2006. 211(6-8):567-75.
5. **Xu W**, Roos A, Schlagwein N, Woltman AM, Daha MR, van Kooten C. IL-10-producing macrophages preferentially clear early apoptotic cells. *Blood,* 2006. 107 (12): 4930-7.
6. **Xu W**, Schlagwein N, Roos A, Van den Berg TK, Daha MR, van Kooten C. Human resident peritoneal macrophages show functional characteristics of M-CSF-driven anti-inflammatory type 2 macrophages. *Eur. J. Immunol,* 2007. 37 (6): 1594-1599.
7. **Xu W**, Berger SP, Trouw LA, Schlagwein N, Mutsaers C, Daha MR, van Kooten C. Properdin regulates alternative pathway complement activation on late apoptotic and necrotic cells. *Blood,* 2007. Provisionally accepted.
8. Castellano G, Woltman AM, Schlagwein N, **Xu W**, Francesco Paolo Schena, Daha MR, van Kooten C. Immune-modulation of human dendritic cells by complement. *Eur. J. Immunol,* 2007. In press.
9. **Xu W**, Zhao X, Daha MR, van Kooten C. Reversible differentiation of pro-inflammatory and anti-inflammatory macrophages. *Submitted.*
10. **Xu W**, Schlagwein N, Daha MR, Spierings E, van Kooten C. Dendritic cells loaded with dying cells are impaired in antigen presentation. *Manuscript in preparation.*

Color figures

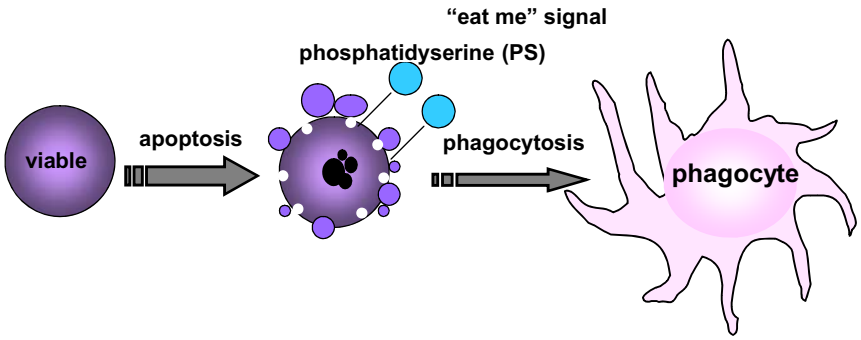

Figure 3, chapter 1, page 12

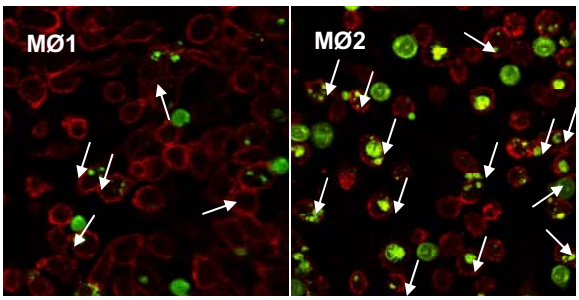

Figure 2C, chapter 3, page 40

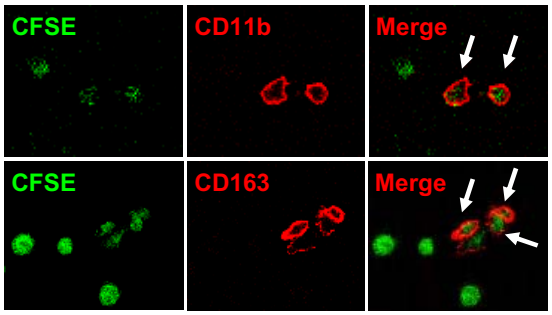

Figure 1B, chapter 4, page 57

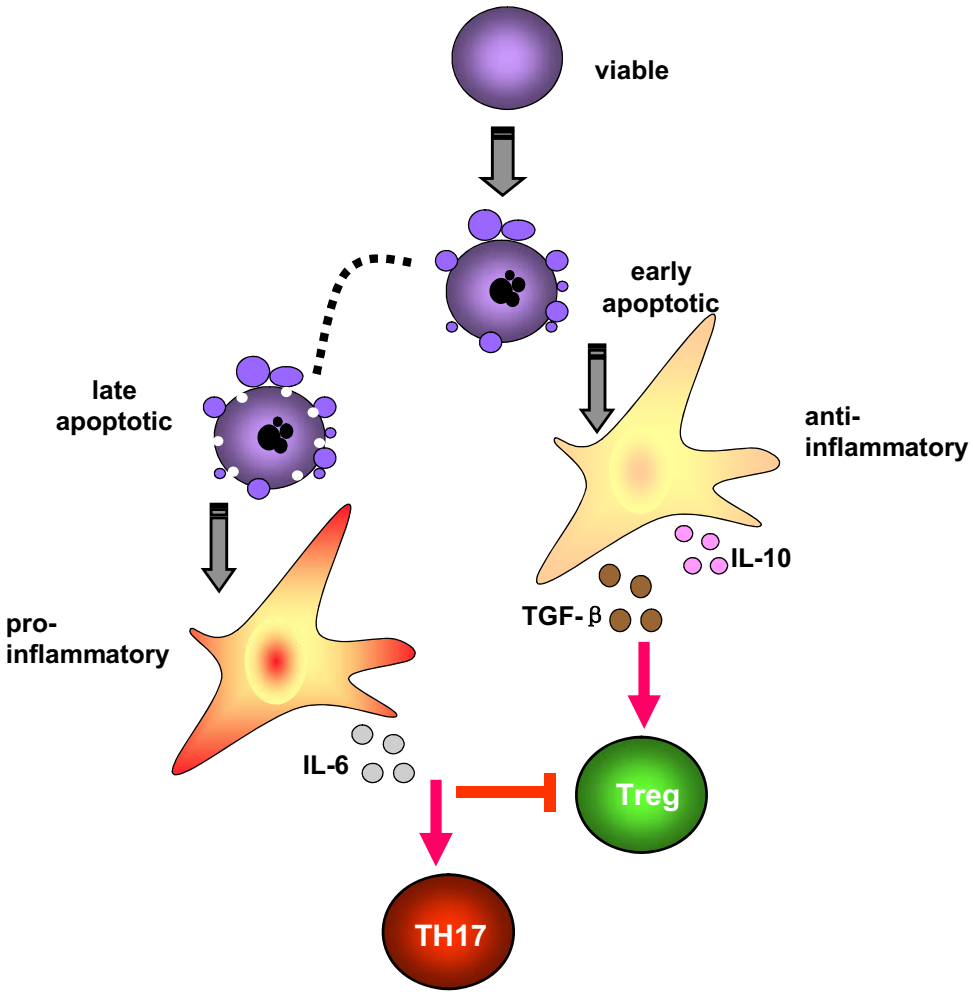

Figure 3, chapter 8, page 122