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Tracking helminths : from molecular diagnostics to mechanisms behind immune polarization

Kaisar, M.M.

Citation

Kaisar, M. M. (2017, September 19). *Tracking helminths : from molecular diagnostics to mechanisms behind immune polarization*. Retrieved from <https://hdl.handle.net/1887/57928>

Version: Not Applicable (or Unknown)

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Author: Kaiser, M.M.

Title: Tracking helminths : from molecular diagnostics to mechanisms behind immune polarization

Issue Date: 2017-09-19

Stellingen behorende bij het proefschrift

“Tracking helminths:

from molecular diagnostics to mechanisms behind immune polarization”

1. The observation that sample handling procedures significantly influence detected DNA yield, illustrates the potential impact of well-defined sample handling procedures and confirms the importance of standardization (this thesis).
2. Lipid composition of whole parasite life cycle stages and the corresponding extracts were highly similar, thereby validating the legitimacy of the widely used parasite extracts in models whereby the immunology of host-parasite interaction is studied (this thesis).
3. *Schistosoma mansoni* eggs condition dendritic cells to drive Th2 responses through at least two independent mechanisms; one involving binding of glycoprotein omega-1 to the mannose receptor, and the other via a Dectin-1/2-Syk-Erk-PGE₂-OX40L signaling axis (this thesis).
4. In contrast to what has been found in murine studies, butyrate requires both GPR109A signaling and HDAC inhibition in human dendritic cells to condition them to induce regulatory T cells (this thesis).
5. As helminths need to survive in the host for long periods of time to ensure effective production of progeny to continue their life cycle, their *modus operandi* has to involve host immune modulation such that their own survival is assured (Nutman T. B. Parasite Immunol. 2015; 37(6):304-313).
6. Blood donors should be encouraged to exercise before they donate blood as it enhances the *ex vivo* generation of monocyte derived-dendritic cells without compromising their function (LaVoy E. C. P. *et al.* Cell Imm. 2015; 295(1):52-59).
7. Just as the immune system has co-evolved with the gut microbiota, it has co-evolved to tolerate the presence of helminth infections (Loke P and Lim Y. A. L. Parasite Immunol. 2015; 37(6): 314-323).
8. As compared to studies of single omics, multi-omics offers the opportunity to understand the flow of information that underlies disease (Hasin Y. *et al.* Genome Biology 2017; 18(1):83).
9. It is a dangerous business going out of your door and stepping into the road, because if you do not keep your feet, there is no knowing where you might be swept off to (Bilbo Baggins, Lord of The Ring (LOTR) by J. R. R. Tolkien, 1954).
10. Success is going from failure to failure without losing enthusiasm (Winston Churchill, 1913).
11. A teacher affects eternity; he or she can never tell where his or her influence stops (Tuesday with Morrie by Mitch Albom, 1997).
12. The surge in adrenalin originally associated with ancient the fight-or-flight response, has proven to be essential in the scientific world: It now allow us to excel under pressure and deal with the deadlines.

Maria M. M. Kaisar
Leiden, 19 September 2017