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## **An engineering approach to decode immune responses**

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# **An engineering approach to decode immune responses**

**Kaspar Bresser**

- 1. The T cell pool can be viewed as an autonomous tissue that abides by organizing principles akin to those of solid organs.** *This thesis*
- 2. All central memory T cells are equal, but some central memory T cells more equal than others.** *This thesis*
- 3. Stem-cell memory T cells should not be considered an entirely distinct population as previously postulated, but rather a constituent of the central memory T cell pool that is primarily set apart by its alternative splicing of CD45.** *This thesis*
- 4. It is important to view our precious data not only as a means to an end for our specific question, but first and foremost as a starting point for others.** *This thesis*
- 5. As technologies and their resulting datasets continue to evolve, keeping shared data FAIR represents a Red Queen's race. We, as a community, should not lose sight of this principle, and remain flexible in the implementation of changes in order to 'keep up'.** *This thesis*
- 6. Unless lineage-tracing approaches are used, individual cells are interrogated at just a single point in time, making it difficult to assess the spatiotemporal changes in differentiation states experienced by a cell.** *Adapted from H. Kay Chung, Bryan McDonald, Susan M. Kaech; J Exp Med 5 April 2021; 218 (4)*
- 7. The term 'cell fate' describes a cell's long-term developmental destination. Cell fate is driven by a combination of the cell's genetic program and the manner in which it responds or adapts to its environment. The sequences of multiple cell states can end with a specified cell fate. However, one cell state is not necessarily destined to have a particular cell fate.** *Adapted from H. Kay Chung, Bryan McDonald, Susan M. Kaech; J Exp Med 5 April 2021; 218 (4)*

8. **Heterogeneity in the T cell pool indicates the presence of various subsets. Alas, those subsets contain heterogeneity, signifying the existence sub-subsets. And of course, maintaining our logic, those sub-subsets must comprise sub-sub-subsets. It's T cell subsets all the way down!** *Adapted from William James*
9. **Scientists should always be careful with the anthropomorphisation of cells. Our cells—and the organism that they comprise—are ultimately nothing but vessels for our genes. Genes do not consider what constitutes good or evil. They do not care whether we are happy or unhappy. We are means to an end. All they care for, is what is most efficient for them.** *Adapted from Haruki Murakami, 1Q84*
10. **The tautological character of the academic publishing and granting system stems from the fact that their means and ends are identical. It is the sun that never sets over the empire of modern passivity. It covers the entire surface of the globe, endlessly basking in its own glory.** *Adapted from Guy Debord, Society of the Spectacle.*
11. **We can forgive a person for making a useful thing as long as they do not admire it. The only excuse for making a useless thing is that one admires it intensely. All art is quite useless.** *Adapted from Oscar Wilde, The Picture of Dorian Gray*