

**Mass spectrometry-based degradomics analysis of toxoid vaccines** Michiels, T.J.M.

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#### Stellingen

#### Behorende bij het proefschrift

## Mass spectrometry-based degradomics analysis of toxoid vaccines

1. Even in century-old vaccines, there is still much to discover.

This thesis, chapter 2

2. No vaccine batch is truly identical to the previous one.

This thesis, chapter 5

3. Treating a protein with formaldehyde can increase its susceptibility to enzymatic proteolysis.

This thesis, chapter 3

4. From an immunological standpoint, formaldehyde-inactivation should be considered for new vaccines; from an analytical standpoint, it should be avoided.

This thesis, chapter 2 and 4

- 5. For the vaccination of healthy people, only the safest vaccine should be used. *Alfaro-Murillo et al. (The Lancet, 2020)*
- 6. For vaccine efficacy, a high purity is sometimes detrimental. Plotkin (Clinical Infectious Diseases, 2014)
- 7. If vaccines would be held to similar analytical and consistency standards as therapeutic proteins, the use of animal tests would be drastically reduced.
- COVID-19 human challenge trials on young healthy volunteers are a safe and more reliable alternative to animal tests for studying infection risk and vaccine efficacy. *Manheim et al. (Risk Analysis, 2021)*
- 9. Sadly, the root cause of most red tape in, for instance, our healthcare system, education system, vaccination programs and PhD programs, is a lack of trust.
- 10. Discrimination is never positive.