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Synthetic tools to study ubiquitin biology

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Stellingen behorend bij het proefschrift getiteld **Synthetic tools to study ubiquitin biology**

1. Ubiquitin is a hardened product of a natural selection process created out of sheer necessity
2. Diubiquitin molecules are the fundamental units to study polyubiquitin chain signalling (this thesis, **chapters 2 and 3**)
3. Isotope labelled diubiquitin molecules are useful to study the interactions between ubiquitin-binding proteins and different isopeptide-linked ubiquitin chains (this thesis, **chapter 3**)
4. Metalloprotease class of deubiquitinases are tricky to work with, but can be trapped using coordination chemistry (this thesis, **chapter 4**)
5. Cell penetrating peptides are good delivery vehicles to transport In vitro synthesized ubiquitin molecules into cells. Naturally, the deubiquitinases within the cell can then uncouple the ubiquitin molecule from the cell penetrating peptides (this thesis, **chapter 5**)
6. Ubiquitin is a very robust protein that can be segregated into individual secondary structures; one such domain containing a pair of beta-sheet inhibits UCHL5 enzyme activity (this thesis, **chapter 6**)
7. Studying ubiquitin can be compared to exploring the universe. We can observe them but need probes to study them in-depth
8. Although the tools for various (de-)ubiquitinating enzymes are being discovered, the vastness of ubiquitin signalling in cell necessitates the further expansion of the ubiquitin toolkit
9. Chemists and biologists are like binary star systems – they both shine and revolve around each other
10. It is vital that the quality of research precedes the time consumed. A delayed game is eventually good, but a rushed game is forever bad (Shigeru Miyamoto, Nintendo Inc., 2013).