



The resulting compound **65** was used to synthesize several peptides, of which two have been employed to raise antibodies. These antibodies successfully recognized natural pHis, both in dot blot tests with pHis containing peptides, as well as in cell lysates. These antibodies can be used in the near future to study the biological functions of pHis.

In order to study the related enzyme PHPT1, responsible for phosphohistidine dephosphorylation, a library of 5-phosphonic acid imidazoles with various substituents on C-2 has been synthesized to act as a starting point for the development of a PHPT1 inhibitor. The synthetic strategy described for the synthesis of mimic **65** was applied to generate this compound set.

The antibodies, inhibitors and other tool compounds described in this thesis provide an invaluable toolset to increase the understanding of phosphorylation.