

## 6. Summary (Englische Zusammenfassung)

This thesis contributes to the systematical understanding of the chemistry of dendronised polymers. New, functionalised, dendritic macromonomers were synthesised and polymerised to give the corresponding dendrimers with a polymeric backbone. The dendronised polymers could be deprotected and be further modified via amide-coupling on the polymer.

Firstly, a new set of amino-functionalised dendrons, up to the fourth generation, was synthesised. As well as a regular pattern of protecting groups, new, mixed, protected dendrons of the first and second generation were synthesised. The peripheral amino groups carry Z- and Boc-protecting groups in a 1:1 (2:2) and 3:1 ratio. These new dendrons allow the flexible synthesis of various dendrimer architectures, including the systematical modification of the inner structure of the dendron as well as of the pattern of protecting groups in the periphery.

Acrylate- and methacrylate-macromonomers of the first and second generation could be synthesised and, for the first generation macromonomers, high degrees of polymerisation could be obtained. The second generation macromonomers only gave oligomers with a narrow weight distribution which could be the result of a rare self-termination of the polymerisation.

For the modification of the polymers an amide-coupling method was established which should be applicable for higher generations of dendronised polymers. After successful deprotection of the polymer, the free amines could be used as anchor groups for the attachment of small molecules such as phenylalanine. With this method polymers could be synthesised which can not be obtained by polymerisation of the corresponding macromonomers. In the case of the mixed-protected G1-polymer which has one Z- and one Boc-protecting group per repeat unit, the Boc-group could be selectively deprotected, and the free amine could be coupled with an amino acid. The remaining protecting groups were cleaved off afterwards.