5 OUTLOOK

A set of highly water soluble dendrimers with a potential application as carriers for anticancer-therapeutics is now accessible. The described building block approach allows for further tailored modifications in the peripheral substitution pattern and may suit for the synthesis of G2- or even G3-dendrimers. These dendrimers would have a molecular weight of 16 kDa and 32 kDa, respectively. *Tris*-orthogonally protected branching units carrying protected amines as well as protected alcohols have to be incorporated and may lead to partially degradable dendrimers with ester-linkages.

The very promising toxicity essays of the dendrimers gaining from incubation with MCF-7-cells have to be reevaluated and confirmed for other cell-lines. The interaction of dendrimers with cells as well as their ability to cross cellular membranes has to be studied. The available dansylated dendrimers are suitably equipped to study cellular uptake and intracellular distribution by confocal microscopy. Results gained from these pharmacokinetic investigations may help to improve the design of OEGylated dendritic carriers.

In the course of this work only a few but promising experiments could be done which prove the potential accessibility of platinated dendrimers. These complexes have not yet been fully characterized and more experimental work will be necessary to improve the synthetic protocols. Efforts on the characterization are considered important because the Pt-charged drug carriers available are usually ill-defined.

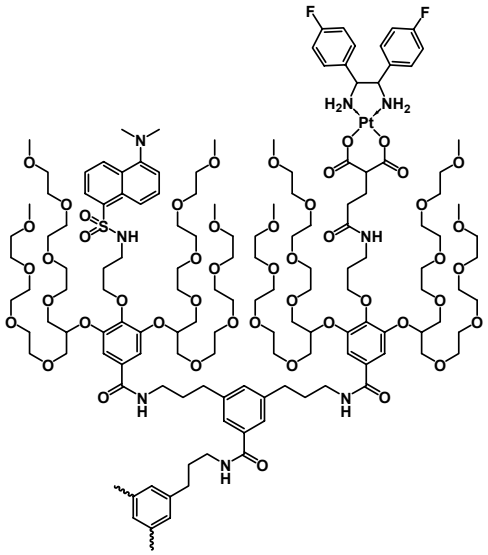

Fig. 50. Envisaged structure of a platinated dendrimer with active tumor targeting moiety, cleavable malonate ligand and fluorescence tag.

The co-complexation of malonato-platinated dendrimers with substituted ethylene-diamine ligands is in preparation. These ligands showed site-specific targeting on certain types of cancer and may help to accumulate a conjugate in cancer cells. The envisaged structure in Fig. 50 shows such a platinated dendrimer carrying in addition a fluorescence label to visualize its cellular uptake and cellular trafficking.

The toxicity of the so far synthesized platinated dendrimers has to be tested to evaluate the efficacy of such conjugates. Since the reliability of a pharmacological characterization depends very much on the purity of a sample, it is essential to improve the purification protocols. The solubility of the platinated dendrimers in THF was very low and, in consequence, their purification with preparative GPC proved to be difficult. Alternatively, it would be of very high preparative value to develop size-excluding separation-protocols, e.g. dialysis or ultrafiltration, which use polar solvents such as methanol or acetonitrile.