

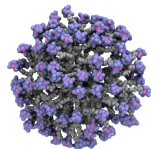
A Phthalocyanine-cored Dendrimer for Photodynamic Therapy

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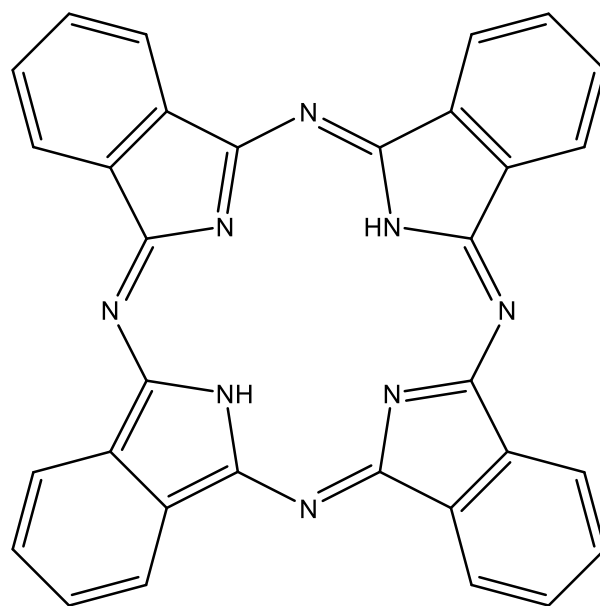
COST ACTION CA 17140
NANO2CLINIC
CANCER NANOMEDICINE - FROM THE
BENCH TO THE BEDSIDE



Funded by
the European Union

The problem

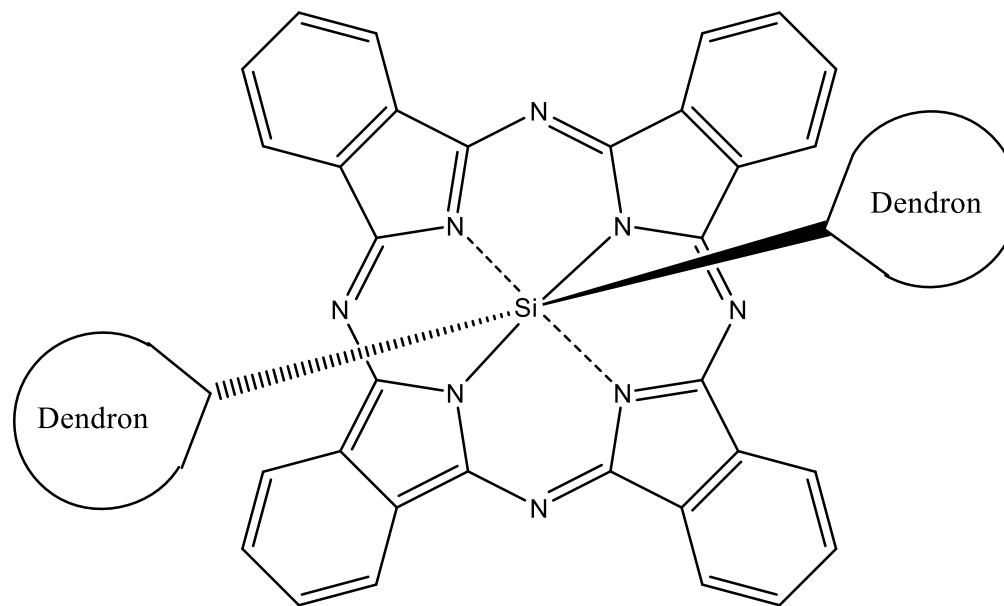
Phthalocyanines are good photosensitizers, but are large flat aromatic molecules that are prone to π -stacking.



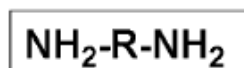
phthalocyanine

The solution?

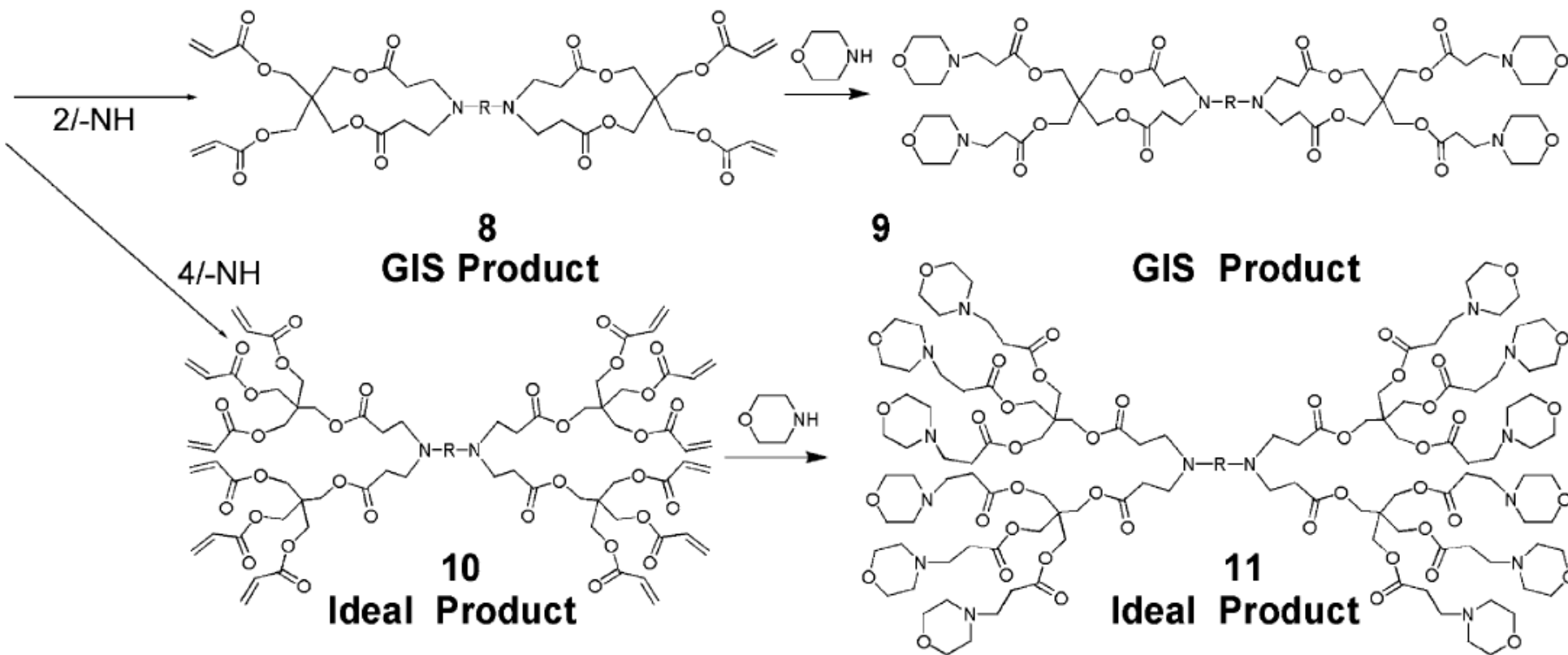
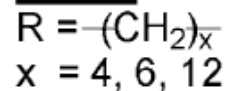
Silicon Phthalocyanines with hydrophilic dendrons attached to the core.



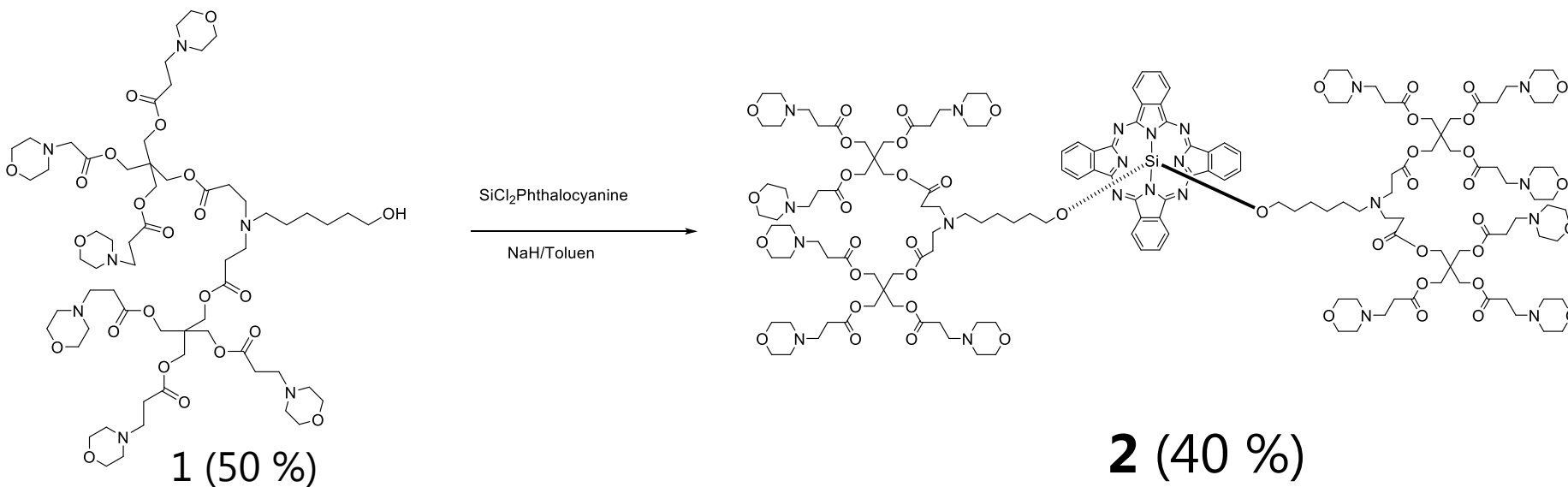
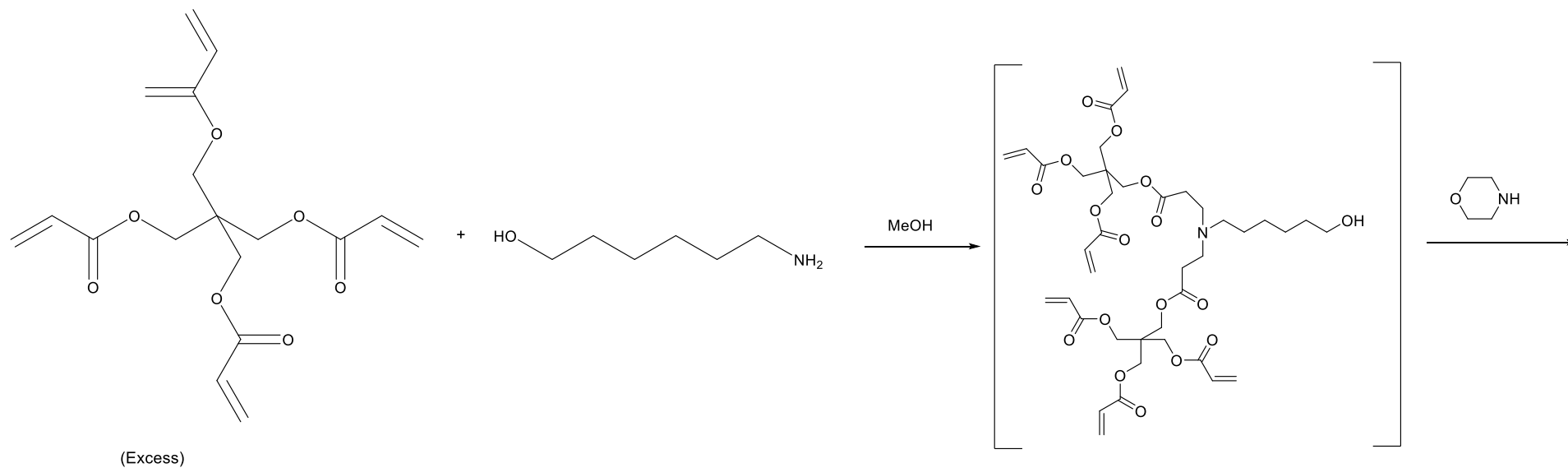
Which dendrons?



Where:



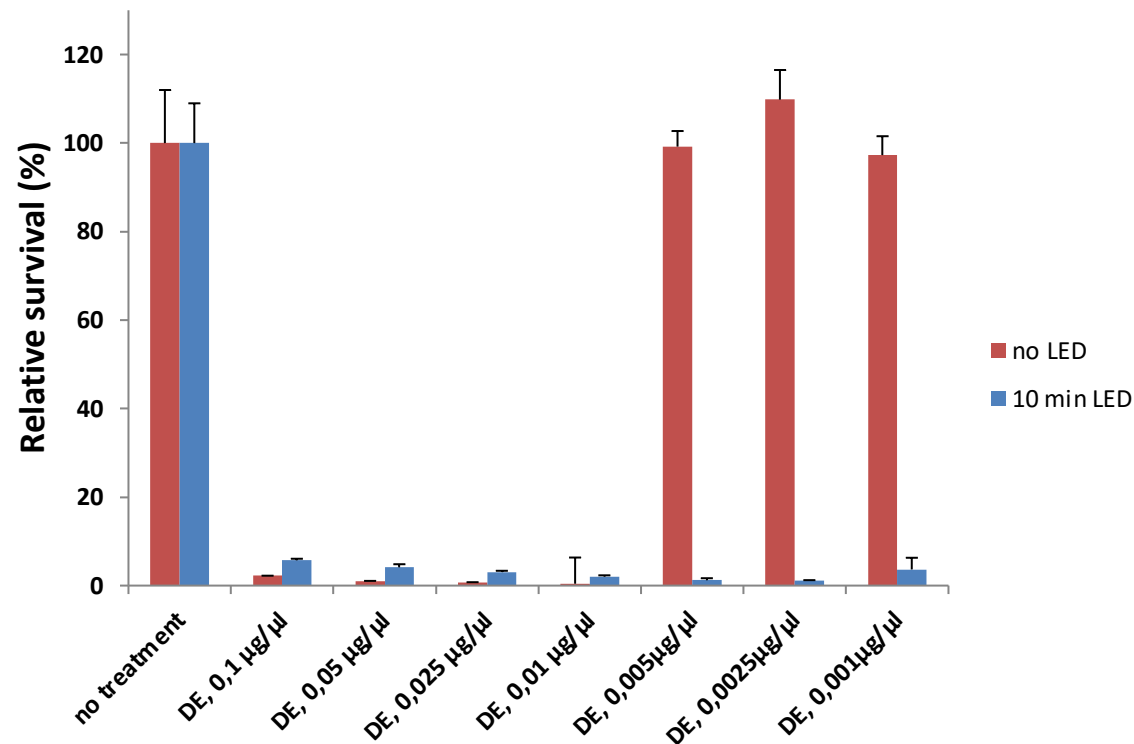
The synthesis



Materials & Methods

- RAW cells (mouse macrophages) split on 96-well plates and cultured in DMEM +10%FBS
- Cells treated next day with various concentrations of dendrimer (0,1-0,001 $\mu\text{g}/\mu\text{l}$)
- Cell culture volume is 100 μl
- One day after addition of substances, LED illumination was performed (10 minutes, 3.5 mW/cm^2)
- Cell viability was measured one day after illumination with MTS –assay (Promega)

Viability assay in RAW cells



- High dendrimer concentrations (0,1-0,01 µg/µl) toxic to cells
- Dendrimer concentrations below 0,005 µg/µl not toxic cells, but all cells killed with 0,001-0,005 µg/µl after LED exposure

Conclusions

- A new water soluble Silicon-phthalocyanine cored dendrimer has been synthesized.
- The dendrimer has excellent PDT-properties *in vitro*.
- Next step?

