*nanomaterials*

MDPI

*Supplementary Materials*

# Tyrosine-Modification of Polypropylenimine (PPI) and Polyethylenimine (PEI) Strongly Improves Efficacy of siRNA-Mediated Gene Knockdown

**Sandra Noske, Michael Karimov, Achim Aigner * and Alexander Ewe ***

Rudolf-Boehm-Institute for Pharmacology and Toxicology, Clinical Pharmacology, Leipzig University, Faculty of Medicine, Leipzig, 04107, Germany; Sandra.noske@medizin.uni-leipzig.de (S.N.); michael.karimov@medizin.uni-leipzig.de (M.K.)

* Correspondence: achim.aigner@medizin.uni-leipzig.de (A.A.); alexander.ewe@medizin.uni-leipzig.de (A.E.); Tel.: +49-(0)341-9724660 (A.A.)

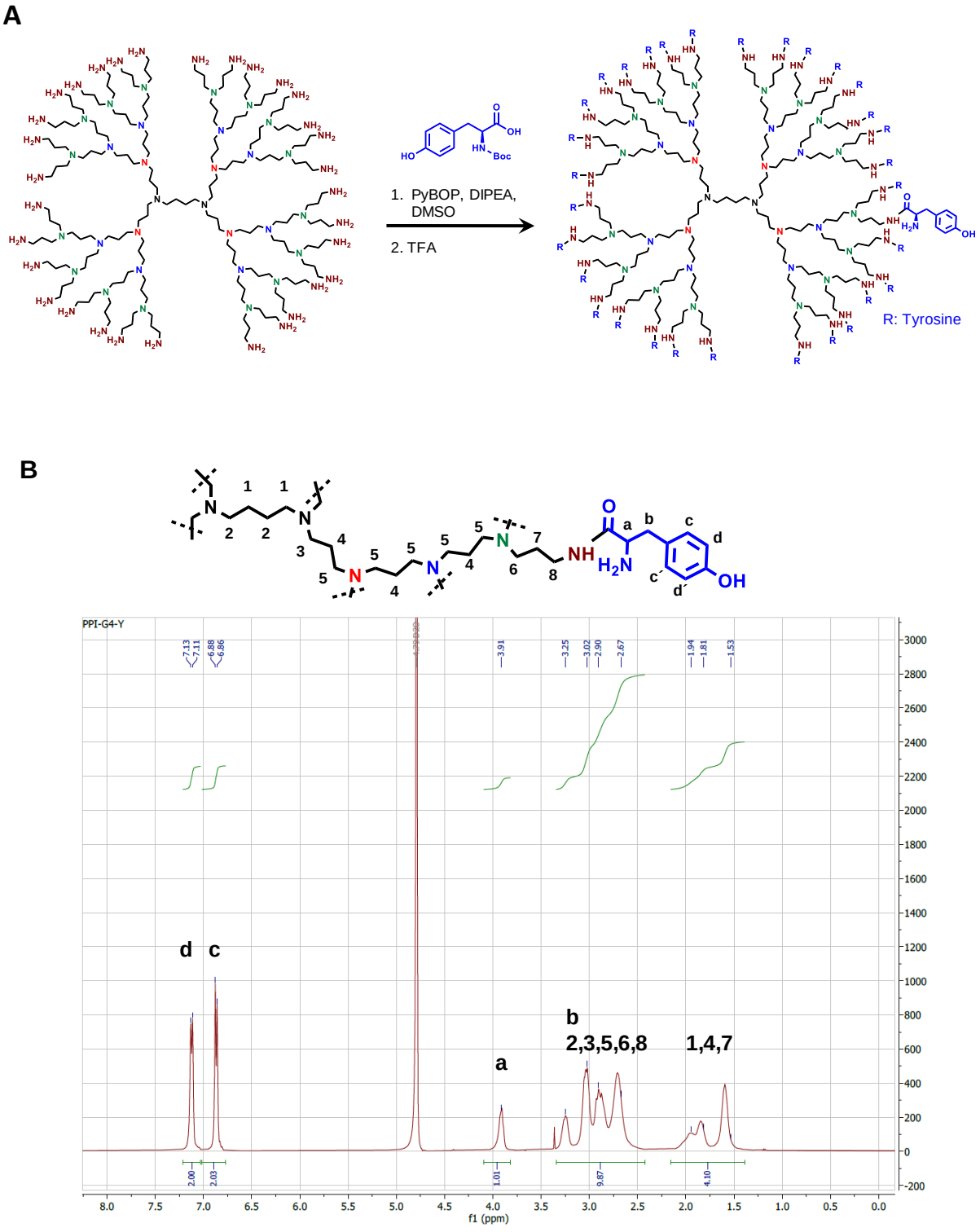


**Figure S1.** (**A**) Synthesis scheme for the generation of PPI-G4-Y. (**B**) 1H-NMR analysis of PPI-G4-Y. Relevant signals are highlighted.

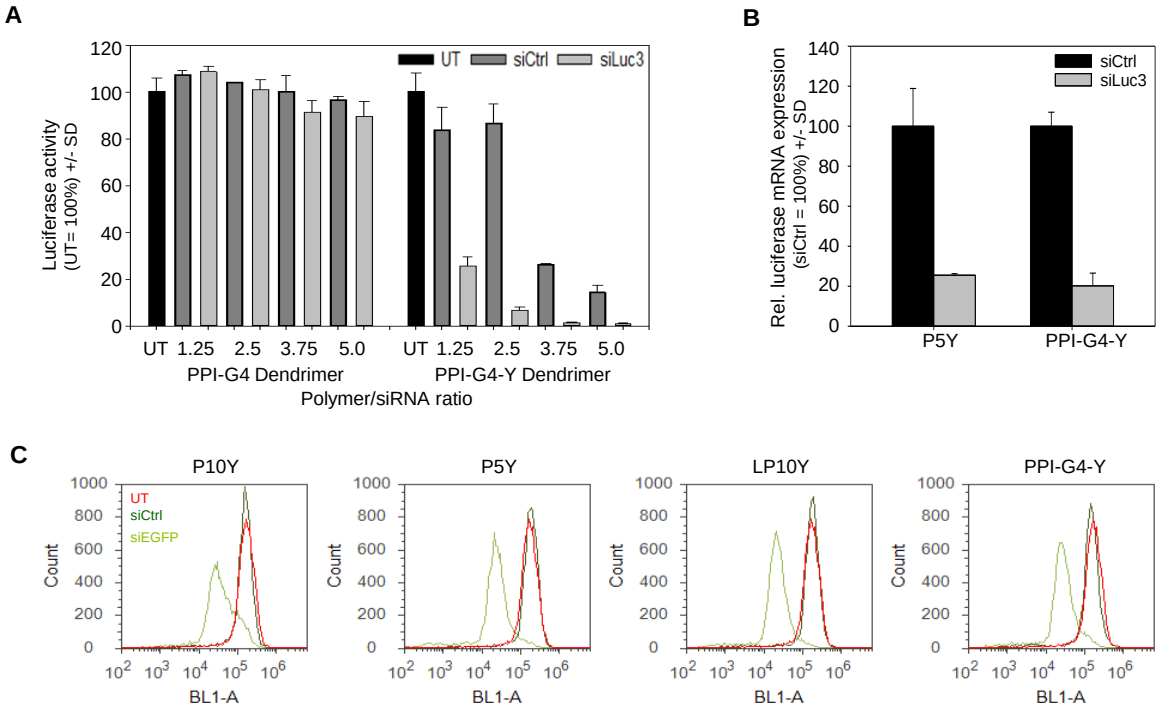


**Figure S2.** (**A**) Knockdown efficacies of PPI-G4 dendrimer-based siRNA complexes with (right) or without (left) tyrosine modification, as determined by luciferase knockdown in PC3-EGFP/Luc reporter cells. Bars show results upon transfection with complexes containing negative control siRNA (black) or luciferase-specific siRNA (grey), respectively, with bars normalized for untreated (UT) negative control. (**B**) Luciferase knockdown on the mRNA level in PC3-EGFP/Luc cells, as determined by RT-qPCR. (**C**) Knockdown efficacies of various tyrosine-modified PPI- or PEI-based siRNA complexes targeting EGFP in PC3-EGFP/Luc cells (original flow cytometry data from Figure 3A).

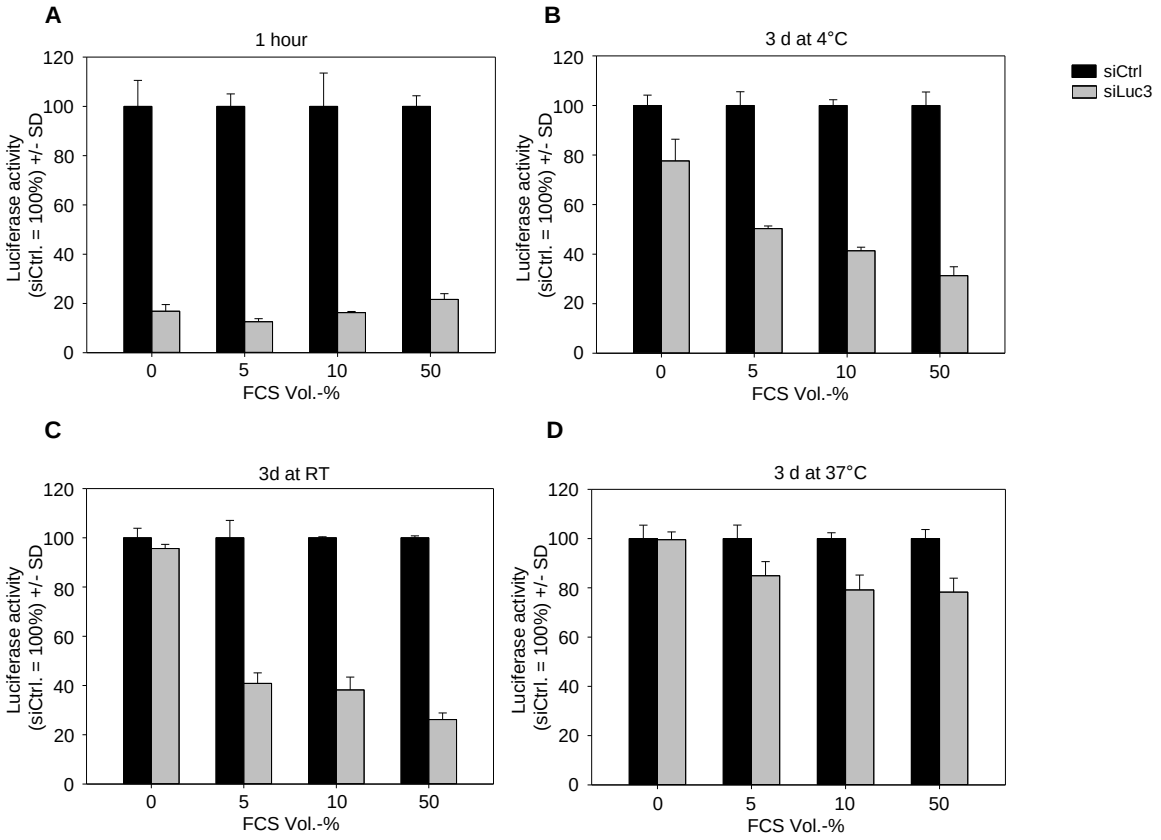

**Figure S3.** Knockdown efficacies of PPI-G4 dendrimer-based siRNA complexes upon storage for three days at different temperatures, in the absence or presence of FCS at the indicated concentrations, as determined by luciferase activity in PC3-EGFP/Luc cells.

**Table S1.** siRNAs used in this study.

| siRNA | | Sequence (5′ – 3′) | Vendor |
|---|---|---|---|
| siLuc 2 | *sense* | CGUACGCGGAAUACUUCGA dTdT | Dharmacon Lafayette, CO, USA |
| | *antisense* | UCGAAGUAUUCCGCGUACG dTdT | |
| siLuc 3 | *sense* | CUUACGCUGAGUACUUCGA dTdT | Eurogentec, Seraing, Belgium |
| | *antisense* | UCGAAGUACUCAGCGUAAG dTdT | |
| siGAPDH | *sense* | CCUCAACUACAUGGUUUAC dTdT | Eurogentec Seraing, Belgium |
| | *antisense* | GUAAACCAUGUAGUUGAGG dTdT | |
| siEGFP | *sense* | GCAGCACGACUUCUUCAAG dTdT | Eurogentec Seraing, Belgium |
| | *antisense* | CUUGAAGAAGUCGUGCUGC dTdT | |

**Table S2.** Sequences of primers used in this study.

| Primer | | Sequence (5′ – 3′) | Vendor |
|---|---|---|---|
| RPLP0 | forward | TCTACAACCCTGAAGTGCTTGAT | Eurofins Genomics, Ebersberg, Germany |
| | reverse | CAATCTGCAGACAGACACTGG | |
| GAPDH | forward | GGTGTGAACCATGAGAAGTATGA | Bianoscience, Gera, Germany |
| | reverse | GAGTCCTTCCACGATACCAAAG | |
| Luc3 | forward | TTACACCCGAGGGGGATGAT | Eurofins Genomics, Ebersberg, Germany |
| | reverse | TCTCACACACAGTTCGCCTC | |