

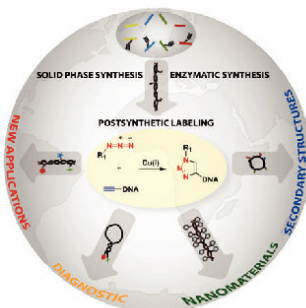


Philipp Gramlich (Autor)

Selective DNA Modification Using the Cu(I)-Catalyzed Alkyne-Azide Cycloaddition

Dissertation zur Erlangung des Doktorgrades
der Fakultät für Chemie und Pharmazie
der Ludwig-Maximilians-Universität München

Selective DNA Modification Using the Cu(I)-Catalyzed Alkyne-Azide Cycloaddition



Philipp Mathias Edwin Gramlich
aus
München
2008

<https://cuvillier.de/de/shop/publications/1334>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,
Germany

Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>

Table of contents

<i>Summary</i>	1
<i>General Remarks</i>	4
1 Postsynthetic DNA Modification via the Copper-Catalyzed Azide-Alkyne Cycloaddition	5
2 Click Chemistry as a Reliable Method for the High-Density Postsynthetic Functionalization of Alkyne-Modified DNA	20
3 DNA Photography: An Ultrasensitive DNA-Detection Method Based on Photographic Techniques	38
4 Formation of Bimetallic Ag–Au Nanowires by Metallization of Artificial DNA Duplexes	58
5 Synthesis of Highly Modified DNA Using a Combination of PCR with Alkyne-Bearing Triphosphates and Click Chemistry	70
6 Pronounced Effect of DNA Hybridization on Click Reaction Efficiency	106
7 Synthesis of Modified DNA by PCR with Alkyne Bearing Purines Followed by a Click Reaction	115
8 Click–Click–Click: Single to Triple Modification of DNA	134
9 Sequential Click Chemistry on PCR Products	152
10 Sequential Click Chemistry for the Attachment of DNA onto Colloidal Mesoporous Silica (Cooperation with Prof. Bein)	163
11 Tetrathiafulvalene (TTF)-DNA Conjugates	173
12 Conjugation of Fluorescent Dyes to DNA for the Construction of DNA Nanotags (Cooperation with Prof. Armitage)	181
13 Synthesis and Structural Studies on DNA Containing a Tryptophan-Mimetic Nucleoside (Cooperation with Prof. Riedle)	193
<i>List of Abbreviations</i>	211
<i>Materials and Methods</i>	214