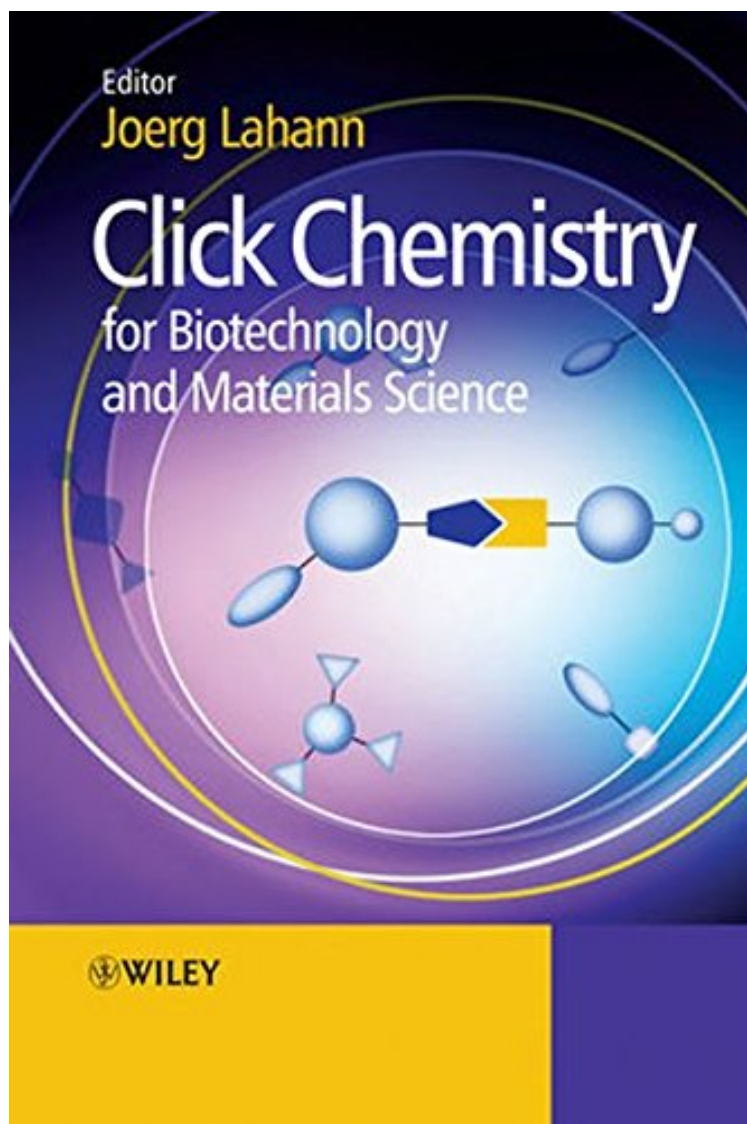



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## Click Chemistry for Biotechnology and Materials Science

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**From Wiley : Click Chemistry for Biotechnology and Materials Science** before purchasing it in order to gauge whether or not it would be worth my time, and all praised Click Chemistry for Biotechnology and Materials Science:

5 of 6 people found the following review helpful. Timely collection of a new front  
By Hongyi Wang  
Click chemistry as a concept has been received well enough in terms of ever-increasing publications. Applications mostly point to material sciences and biotechnology where beautiful examples were demonstrated (the topics of the book). On industrial level click chemistry has yet to offer anything practically important. Neither has it afforded much in pharmaceutical world which was initially targeted. Some small libraries and screening work have been published in

search of enzyme inhibitors using click chemistry. It is possible that there is large body of work not disclosed by industry for IP reasons. These should not deny the concept and some very good reactions hard to come by in organic chemists' eyes. Like anything else, there has to be a period in which theories, examples, commercial reagents are getting ready in place - and workers would doubt, hesitate, then start to try it out, overcome some difficulties, and finally like and adopt it. This will take much longer for intended biotechnology scientists than for professional chemists. The book comes in a very timely fashion and may help to significantly shorten this period. The 411-page book has the traditional "Wiley-quality". Frontier research groups describe their own work in 16 loosely connected chapters and give a broad picture of "current" status of the application of click chemistry in two fields: biotechnology and material science. Expect 16 reviews or accounts in very recent time - perfect for one to survey and enter the field. Readers may find it useful in two ways. They may adopt the applications directly in their closely related work. Or they may be excited by the elegance of the chemistry and adopt the chemistries in their own fields. After all, it is a very, very good tool. Some readers may turn out to be interested in certain chapters, not the others, largely due to the nature of the chemistry as a tool and therefore the large scope it can be used. The index appears very thin and may be hard to use. The literature does not cover the patent world. One would realize how fast the field is developing if I say that many significant progresses have already taken place since April 2009, the Preface date by the Editor Joerg Lahann. It is necessary to follow the most current publications in major journals to keep up with the field. Click chemistry is not equal to Cu(+) catalyzed triazol formation although literature centers on it. At least two types of Cu-free exist, which comforts many workers in toxicity concerns. Another click reaction, ene-thiol reaction, may find the best practical use in industry. Running a click reaction is not as easy as a piece of cake. Actually one may need quite some tweaking in starting trials, particularly in catalyst and solvent selection. There are very good reviews detailing all these aspects. Once you get it working for you, click chemistry can be very rewarding and productive. In early days, one had to make all the reagents themselves before coming to the final "click". No doubt it did not help those who were not familiar with organic synthesis but could potentially be interested and would not mind in "clicking". Last several years has seen increasing reagent offering from a wide range of vendors, both domestic and international. One would see more and more reagents available in "clickable" forms: biotin, fluorophore, quenchers, amino acids, carbohydrate, PEG, nucleosides for biotechnology, and many precursors, dendrons, intermediates for material science. There are even more for thiols and terminal alkenes.

Mimicking natural biochemical processes, click chemistry is a modular approach to organic synthesis, joining together small chemical units quickly, efficiently and predictably. In contrast to complex traditional synthesis, click reactions offer high selectivity and yields, near-perfect reliability and exceptional tolerance towards a wide range of functional groups and reaction conditions. These spring loaded reactions are achieved by using a high thermodynamic driving force, and are attracting tremendous attention throughout the chemical community. Originally introduced with the focus on drug discovery, the concept has been successfully applied to materials science, polymer chemistry and biotechnology. The first book to consider this topic, *Click Chemistry for Biotechnology and Materials Science* examines the fundamentals of click chemistry, its application to the precise design and synthesis of macromolecules, and its numerous applications in materials science and biotechnology. The book surveys the current research, discusses emerging trends and future applications, and provides an important nucleation point for research. Edited by one of the top 100 young innovators with the greatest potential to have an impact on technology in the 21st century according to *Technology Review* and with contributions from pioneers in the field, *Click Chemistry for Biotechnology and Materials Science* provides an ideal reference for anyone wanting to learn more about click reactions.

"This book is a high-quality reference for people working in the field or for people interested in using click chemistry in biotechnology and/or materials science." (*Angewandte Chemie*, 2010) "This book should remain an essential reference source for many years." (*Chemistry World*, April 2010)