The logo consists of three white hexagons arranged in a descending staircase pattern. The top hexagon contains the letter 'O', the middle one 'C', and the bottom one 'P'.

ORGANOMETALLICS
CHEMISTRY
PRIMERS



CHEMISTRY OF ORGANOLITHIUM REAGENTS

This book is designed for CSIR-UGC-NET-JRF/LS, GATE, APSET, APPSC-JL'S, PL'S & DL'S, UPSC-CHEMIST'S & IIT-JAM Chemistry Competitive Examinations

An Un-told Chemistry of Organolithium reagents

Dr RAMA SEKHARA REDDY DACHURU
Mr NARESH BABU GATCHAKAYALA



LABORIOUS NEW INNOVATORS GROUP PUBLICATIONS

ORGANO METALLIC'S CHEMISTRY PRIMERS-OCP-1

CHEMISTRY OF ORGANOLITHIUM REAGENTS

BY

**Dr. D. RAMA SEKHARA REDDY
& Mr. G. NARESH BABU**

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Dedicated to the memory of

My Teacher

Prof. R. Venkateswarlu,

Department of Organic Chemistry, Andhra University, Visakhapatnam,

for his lifelong commitment to mentoring postgraduate students

Dedicated to the memory of
My Maternal uncle
Dr. B. Malakonda Reddy M.B.B.S.
Who inspired me to serve the society

Series Editor's Foreword

Reactions involving nucleophilic carbon derived from organolithiums are the most versatile methods for carbon-carbon bond formation: these reagents are crucial to many synthetic strategies for simple as well as complex targets. The understanding of polar organolithiums and their reaction is therefore essential for all students of chemistry.

Organometallics Chemistry Primers (OCP) have been designed to provide concise introductions on organometallic reagents relevant to all students of chemistry and contain only the essential material that would normally be covered in an 8-10 lecture course. In this first primer of the series, Dr. D. Rama Sekhara Reddy, Mr. G. Naresh Babu provides, in an easy-to-read style, an excellent introduction to the complex topic of organolithiums. With this foundation, students will be much better equipped to tackle synthetic problems. This primer will be of interest to apprentice and master chemists alike.

- **Dr. D. RAMA SEKHARA REDDY**
- **Mr. G. NARESH BABU**

Preface

This book is concerned with polar organolithiums and their use in organic synthesis. It will be useful in undergraduate, postgraduate chemistry courses and also to the practicing chemist looking for a concise overview of this area. Our aim is to provide sufficient information for the student to be able to propose polar organolithiums to solve synthetic problems, and also to avoid the pitfalls involved in their use.

We are indebted to the following people for helpful comments and criticism of the text: Dr T.E. Divakar, Dr Naganjaneyulu, and Dr B. Veeranjanyulu.

I would also like to thank my wife for her constant encouragement.

- **Dr. D. RAMA SEKHARA REDDY**

I would also like to thank my parents for their constant encouragement.

- **Mr. G. NARESH BABU**

August 2021

ABOUT THE AUTHOR



Dr. D. Rama Sekhara Reddy has been serving as a Head of the Department, Department of chemistry, Krishna University, Machilipatnam, Andhra Pradesh, India. After taking over as Head of the Department, He has initiated several academic reforms such as public lectures, seminars, workshops and conferences to enrich the culture of research and teaching. In Gandhian mould, he believes that a classroom should be a base for the complete personality development of a student. With this in mind, Dr. D. Rama Sekhara Reddy strived to also promote sports and cultural activities in the Department.

Dr.D. Rama Sekhara Reddy received graduation (B.Sc.) from V.R. College, Nellore in the year 1998. He obtained post-graduation (M. Sc) from Acharya Nagarjuna University, Guntur in the year 2001 and he obtained his Ph.D from the Department of Organic Chemistry, Andhra University, Visakhapatnam, in the year 2009. During Doctoral Program he worked as JRF in a DST sponsored project under the guidance of Prof. R. Venkateswarlu. After completing his doctoral degree in the area of Natural products Chemistry in 2009 from India, he worked as Post-Doctoral Fellow at Institute of Biological Chemistry, Washington State University, WA, USA from 2009-2011 and continued as Post-Doctoral Research Associate at Centre for Pharmacology, Pharmaceuticals and Pharmacology, The University of Trans-Disciplinary Health Sciences & Technology (Formerly named I-AIM), Bangalore, K.A, INDIA from 2011-2012.

Later in the year 2012, he joined as Assistant Professor in the Department of Chemistry, GITAM University, Visakhapatnam, A.P, INDIA. Further in the year 2013, he joined as Assistant Professor in the Department of Chemistry, Krishna University, Machilipatnam, A.P, INDIA. Currently he is acting as Head of the Chemistry Department.

Dr D. Rama Sekhara Reddy is one of the leading resource persons in the world of research and consultancy. He has guided research scholars for Ph.D programme. Under his supervision, two Ph.D Degrees have been awarded, currently, 6 research scholars are working with him. His main research interests include Natural products Chemistry, Organic Synthesis and Nanochemistry. He published 30 research publications in various national and international journals with a scientific reputation. He is currently serving as a potential reviewer for various Scopus, and SCI journals.

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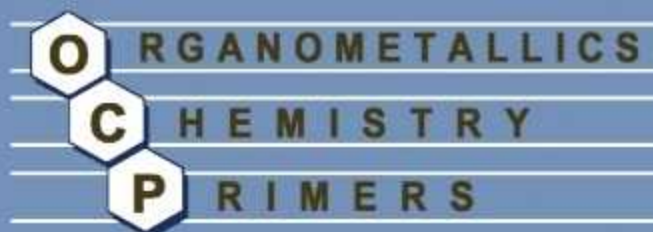
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**ORGANOMETALLICS
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SERIES EDITORS

This series of short texts cover a variety of important subjects in organometallic chemistry. The Organometallics Chemistry Primers, written with the needs of students in mind, provide just the correct amount of detail for undergraduate study and will be essential as a source of topics regularly offered in lecture courses but not fully covered in existing texts. To generate succinct yet thorough explanations of topics covered in core and specialist courses, all key ideas and facts in a particular area are presented clearly and easily.

The characteristics and reactivity of organolithium compounds are covered in this easy-to-understand primer. The importance of their use in synthesis is highlighted. Organolithium reagents offer a variety of useful techniques for forming carbon-carbon bonds, and this concise overview of lithium compounds emphasises their usefulness in such reactions. The book takes a rational approach to organolithium chemistry, giving students a quick review of the area as well as a variety of methods for tracking out synthetic issues.

- Dr. D. Rama Sekhara Reddy

- Mr. G. Naresh Babu

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