

# Organic Mechanisms in Biology

*A Self Instruction Manual*

*Compiled & Edited by:*  
Tan Chun Hoe  
Erlina binti Abdullah



*Published by:*  
**Lincoln University College**

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**Dr. Tan Chun Hoe**

*Faculty of Applied Science, Lincoln University College, Malaysia*

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**Lincoln University College**

Wisma Lincoln, No. 12,14,16 & 18,  
Jalan SS 6/12, Off Jalan Perbandaran  
47301 Petaling, Jaya,  
Selangor Darul Ehsan, Malaysia

Tel.: +603-7806 3478

Fax: +603-7806 3479

Toll Free: 1-300-880-111

E-mail: [lucp@lincoln.edu.my](mailto:lucp@lincoln.edu.my)

[info@lincoln.edu.my](mailto:info@lincoln.edu.my)

Web: [www.lucp.net](http://www.lucp.net)

[www.lincoln.edu.my](http://www.lincoln.edu.my)

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## *Preface*

The **Organic Mechanisms in Biology Self-Instructional Material (SIM) Module** is developed to offer a cutting-edge, interactive experience for students and researchers to explore the intricate chemical reactions underlying biological systems. Organic chemistry forms the foundation of many essential biological processes, from enzyme catalysis to DNA synthesis. This module seeks to demystify these complex mechanisms, making them accessible through dynamic simulations and visualizations.

Designed to complement traditional classroom and laboratory learning, this module allows users to observe and manipulate organic reactions in a biological context, such as nucleophilic substitutions, electrophilic additions, and redox reactions. By simulating the molecular interactions in real-time, students can visualize reaction pathways, follow electron flow, and understand the role of catalysts in facilitating biological processes.

This tool is especially valuable for bridging the gap between theoretical organic chemistry and its applications in biology. Users can experiment with different reaction conditions, explore the effects of structural variations, and simulate common biochemical mechanisms such as glycolysis, fatty acid oxidation, and protein folding. This interactive experience encourages active learning and promotes a deeper understanding of how organic chemistry principles are fundamental to life itself.

Aligned with modern biology and biochemistry curricula, the **Organic Mechanisms in Biology Self-Instructing Material (SIM) Module** provides an engaging platform for educators and students to explore the chemistry of living organisms in a flexible, visual, and hands-on manner. Our aim is to inspire curiosity and foster a profound understanding of the organic chemistry driving biological systems.

Tan Chun Hoe  
Erlina binti Abdullah

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47301 Petaling, Jaya,

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E-mail: [lucp@lincoln.edu.my](mailto:lucp@lincoln.edu.my)

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