A new reaction! The Cope Rearrangement.

Predict the major product of the following Cope Rearrangement.

1,5-diene $\rightarrow$ The Cope Rearrangement

A $\rightarrow$ B

What is the mechanism of this reaction?

Predict the product of the following Cope Rearrangement.

How could the reactant of this Cope Rearrangement be prepared?

How could the reactant of this Cope Rearrangement be prepared?
There are many variations of the Cope Rearrangement. Which compound is more stable?

\[
\text{1,5-diene} \quad \ce{\text{\H��\H��}} \quad \text{The Caisen Rearrangement}
\]

What is the product of the following reaction?

The Claisen Rearrangement

[Diagram showing the reaction with labeled products A, B, C, D, and E.]

What is the product of the following reaction?

The Claisen Rearrangement

[Diagram showing the reaction with labeled products A, B, and C, with additional structures for A and B.]
**Medicinal Chemistry and Organic Synthesis**

**Things we have**

- Organic synthesis

**Things we want**

- Health care

**Technology**

---

**Medicinal Chemistry and Organic Synthesis**

**History**

What are the problems?

1. Many, many active pharmaceutical ingredients (APIs) are present in a single organism.
2. Each API may have many biological responses

**Problems**

- Pain
- Bacterial infections
- Fungal infections
- Viral infections
- Cancer
- Cardiovascular disease
- Depression

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**Medicinal Chemistry and Organic Synthesis**

**History**

<table>
<thead>
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<th>Isolate chemical components</th>
<th>Medical Problems</th>
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<td>Ibotenic acid</td>
<td>GABA agonist</td>
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<td>Muscimol</td>
<td></td>
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</table>

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**Medicinal Chemistry and Organic Synthesis**

History

- Prepare from readily available chemicals.

**Medical Problems**

New APIs that do not occur naturally!
Which amino acids would be present on the membrane side of the sodium channel?

Which amino acids would be present on the "channel" side of the sodium channel?

Local anesthetic
Stimulant
Appetite suppressant
Vasoconstrictant