

# Olefin Metathesis Catalysts for Industrial Applications

February 2025  
Nashville, TN



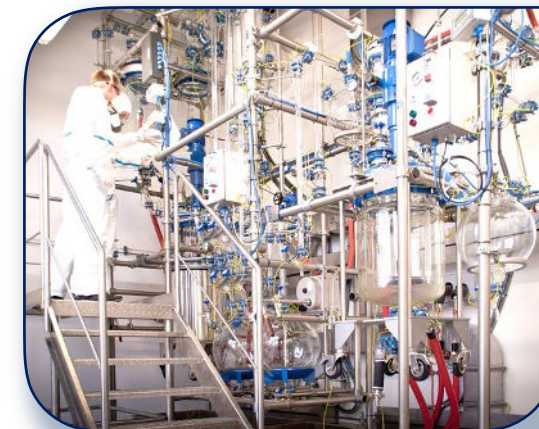
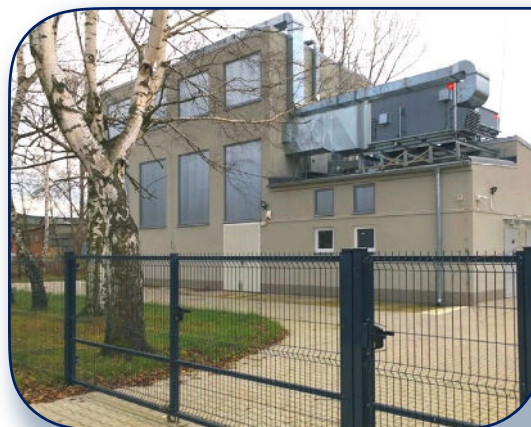
**WROCLAW – OLD CITY**



**APEIRON SYNTHESIS HQ**



Apeiron Synthesis operates on **400 m<sup>2</sup> laboratory space** at Wrocław Technology Park using **state-of-the-art lab equipment**





## Sustainable green chemicals

High value oleochemicals derived from renewable feedstocks



## Fine Chemicals

Alternative and efficient production routes to raw materials, active ingredients, and pheromones

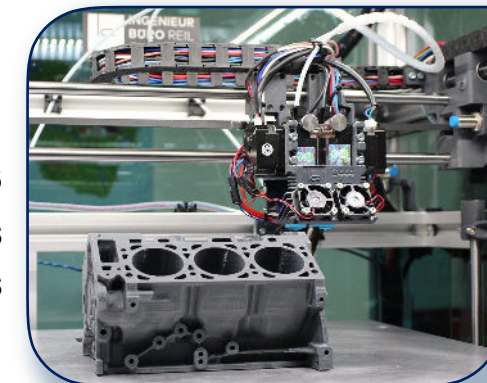
## Healthcare

Benign and efficient methods to produce new generation of drugs



## Advanced Materials

Materials with enhanced properties used in innovative processes



We help our partners to **make a difference in the world through innovation**

## PROPRIETY CATALYSTS

Producing and selling **state-of-the-art metathesis catalysts** to serve Pharma, Fine Chemicals, Renewables and Advanced Materials market segments.



## GENERIC CATALYSTS

Offering **generic metathesis catalysts** and **custom manufacturing of homogeneous Ru catalysts**.



## SUPPORTING SERVICES

**Catalyst screening and process optimization** services at lab scale as stand-alone business or embedded in projects in Pharma, Fine Chemicals and Renewables segments.



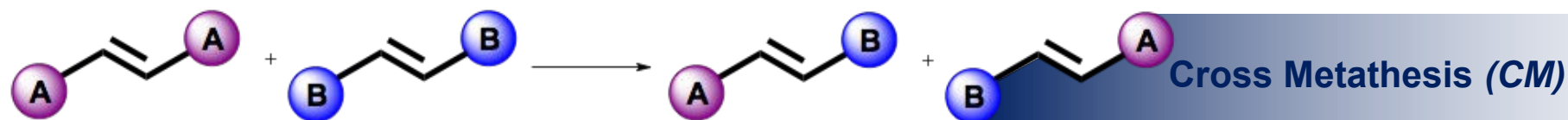
## CDM SERVICES

**Custom Development and Manufacturing** of metathesis intermediates and final products to customers from F&F and Pharma Segments, and transformation of ethenolysis products.

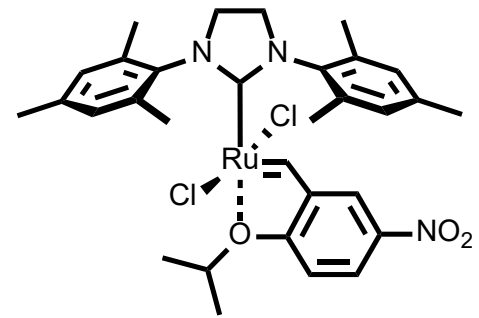


*"...metathesis is one of organic chemistry's most important reactions. **Fantastic opportunities have been created for producing many new molecules - pharmaceuticals, for example. Imagination will soon be the only limit to what molecules can be built!**"*

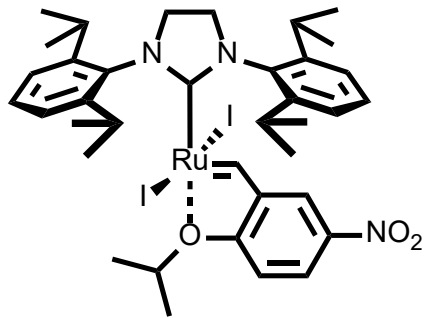
Royal Swedish Academy of Sciences



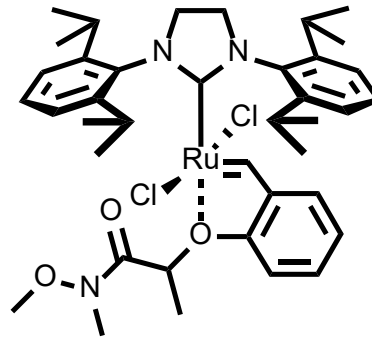
# Our Core Metathesis Catalysts Available at Industrial Scale



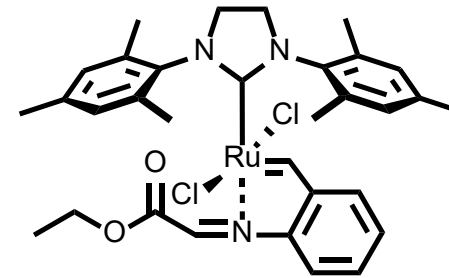
Nitro-Grela



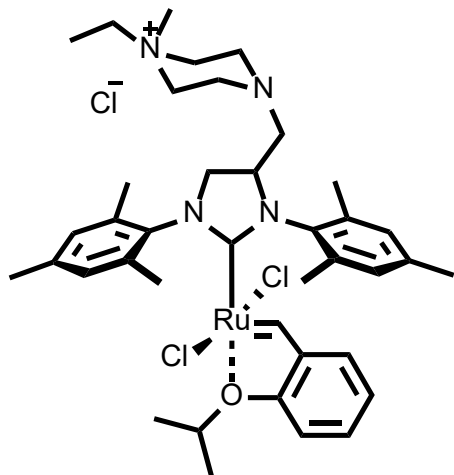
Nitro-Grela SiPriI2



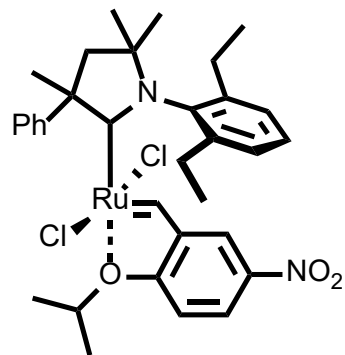
GreenCat



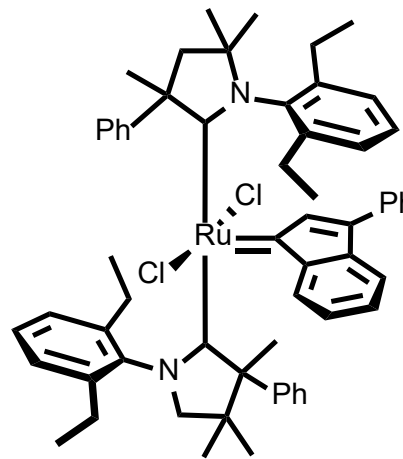
HeatMet



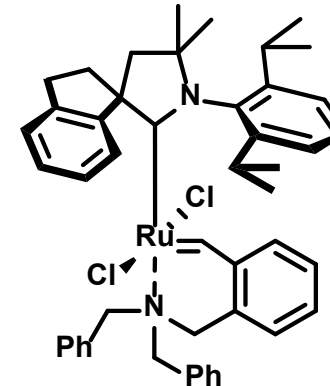
StickyCat



UltraNitroCat



UltraCat



SlashCat

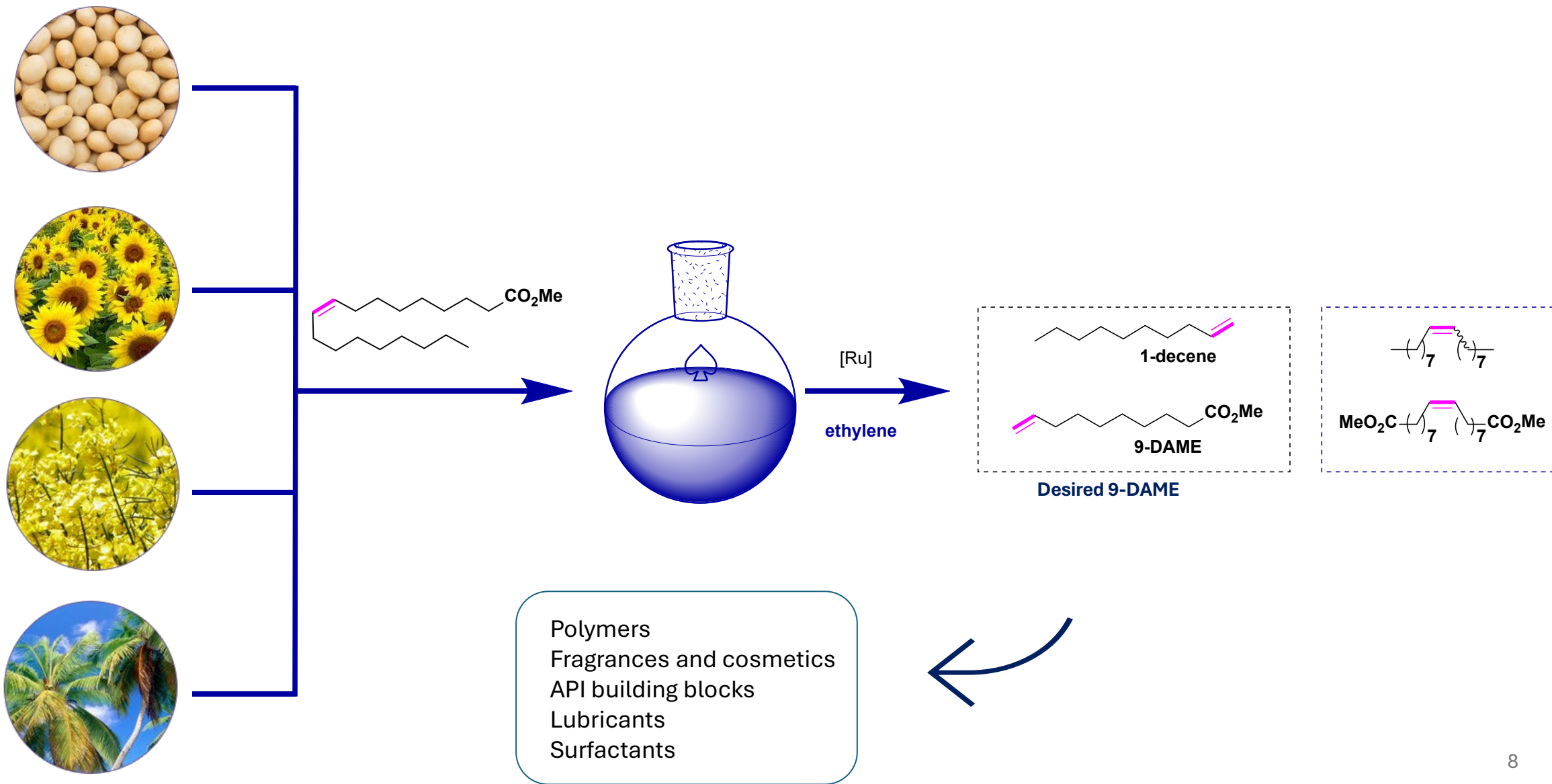


46  
patent  
licenses

36  
patent  
applications

Proprietary catalysts covering major European, North American and Asian markets

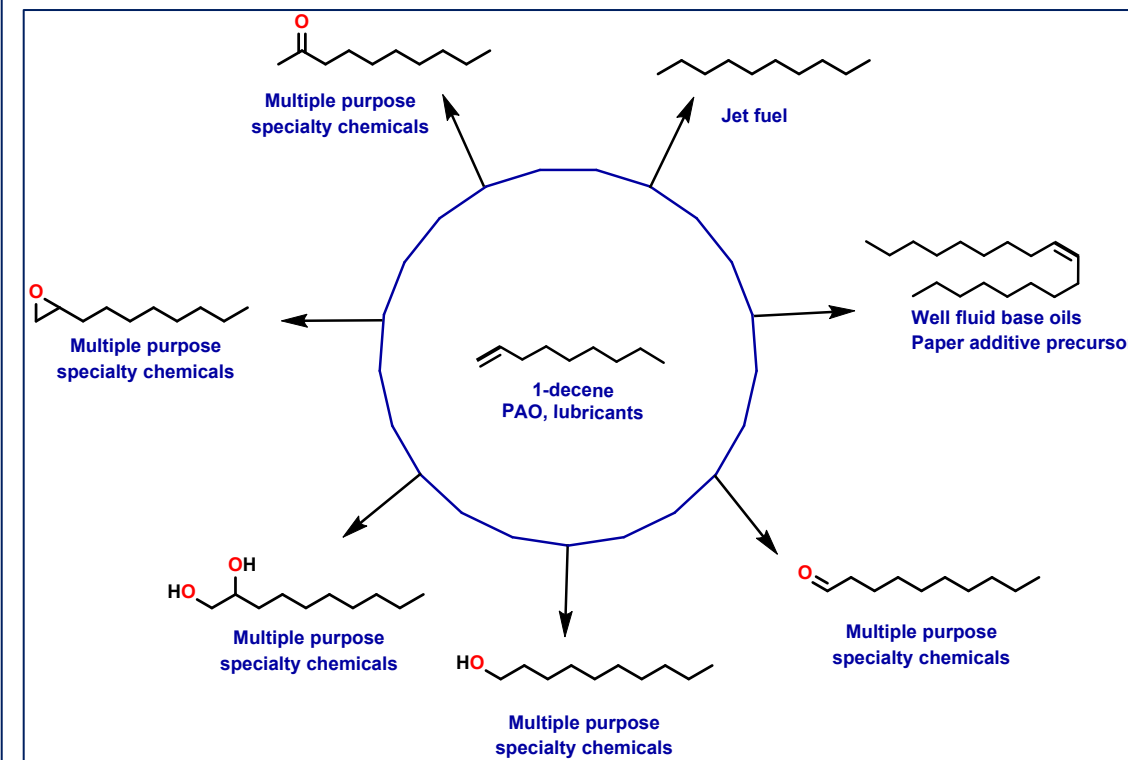
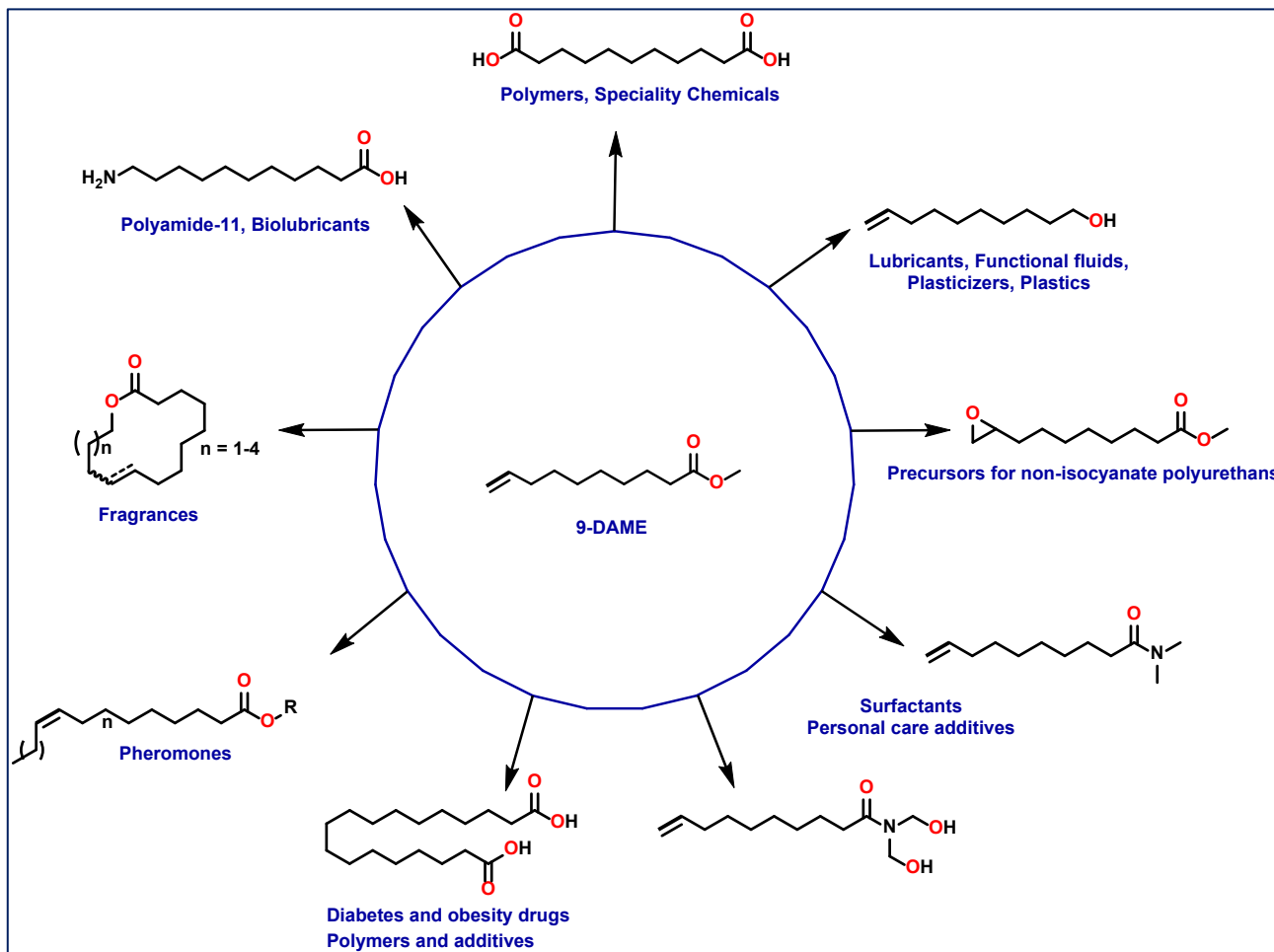
# Applications of Olefin Metathesis – Ethenolysis of vegetable oil





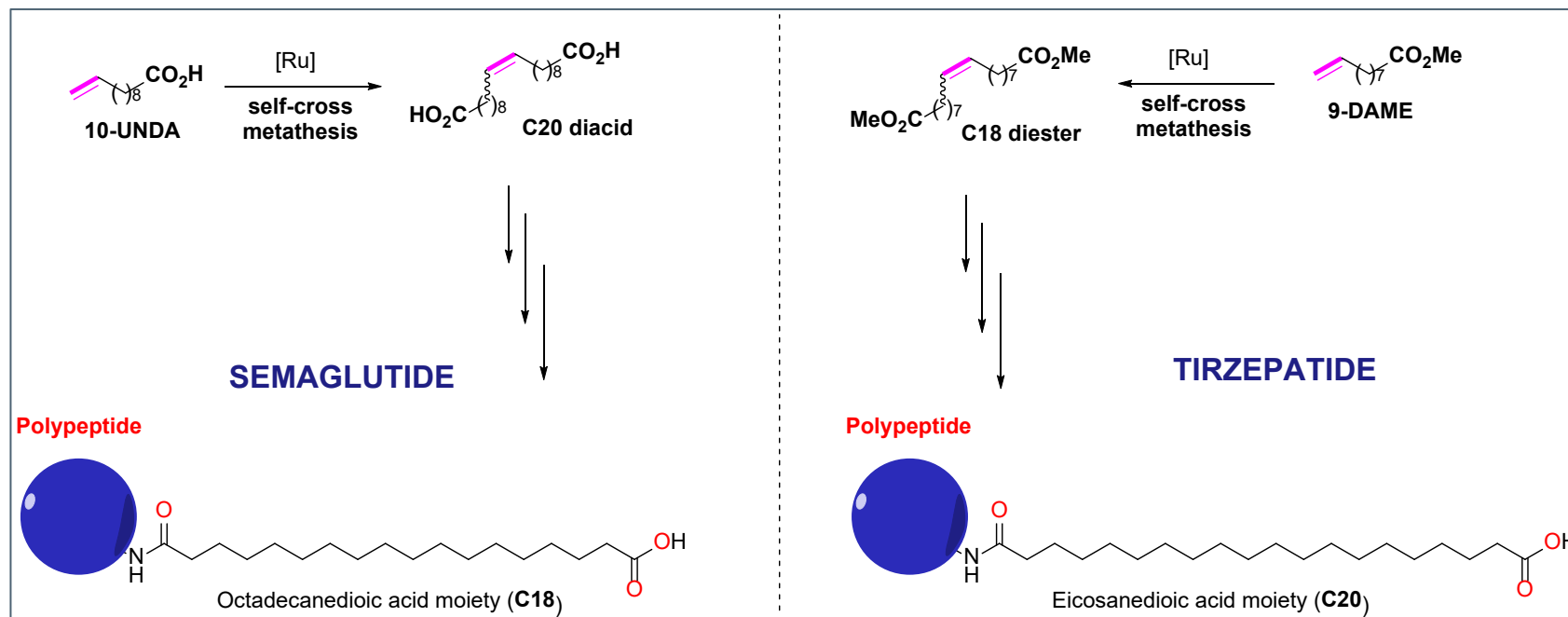
# Applications of Olefin Metathesis

## 9-DAME and 1-decene – Value-Added Products

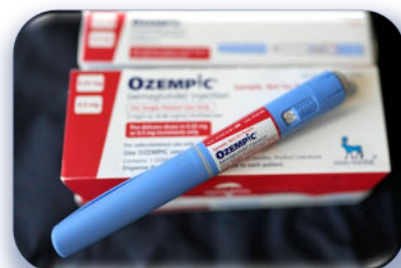


**9-DAME and 1-decene** serve as starting materials for diverse **green specialty chemicals**

## Self Cross-Metathesis reaction in the synthesis of anti-obesity and -diabetes drugs



**Novo Nordisk**  
Semaglutide - GLP-1 agonist



**Novo Nordisk**  
Semaglutide - GLP-1 agonist



**Eli Lilly**  
Tirzepatide - GLP-1 agonist and GIP agonist



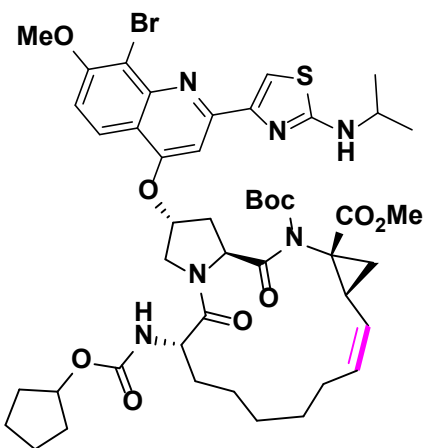
**Eli Lilly**  
Tirzepatide - GLP-1 agonist and GIP agonist

## Ring-Closing Metathesis reaction in the synthesis of HCV inhibitors

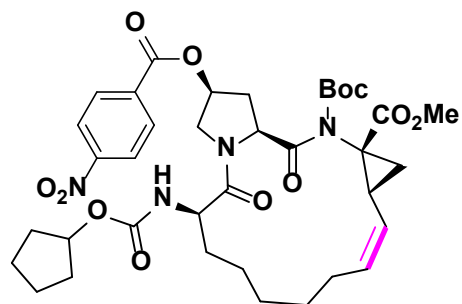
### HCV protease inhibitors

BI 201302

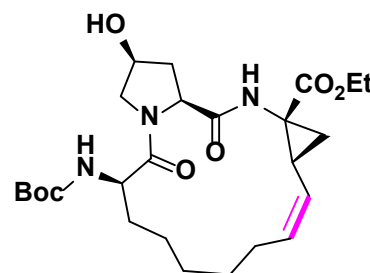
Boehringer-Ingelheim



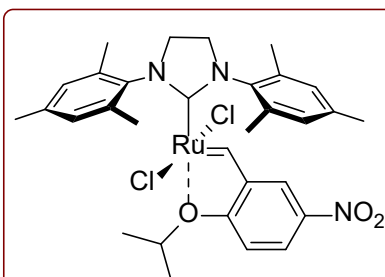
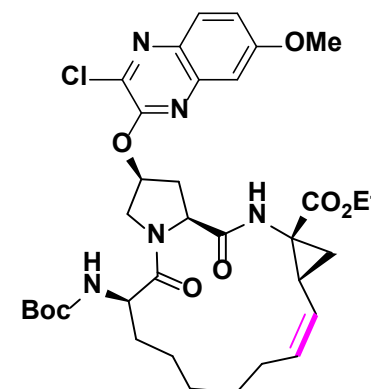
Ciluprevir  
Boehringer-Ingelheim



GSK & Anacor Pharmaceuticals



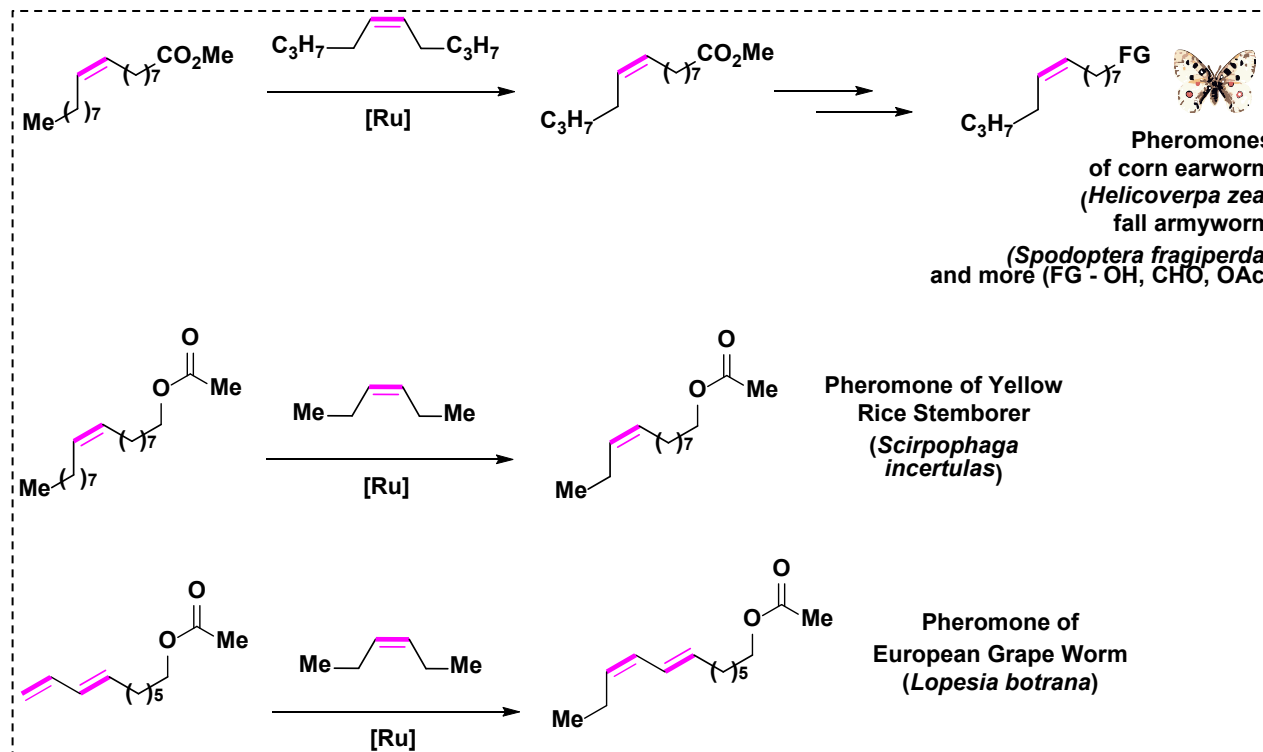
MK6325  
Merck & Co



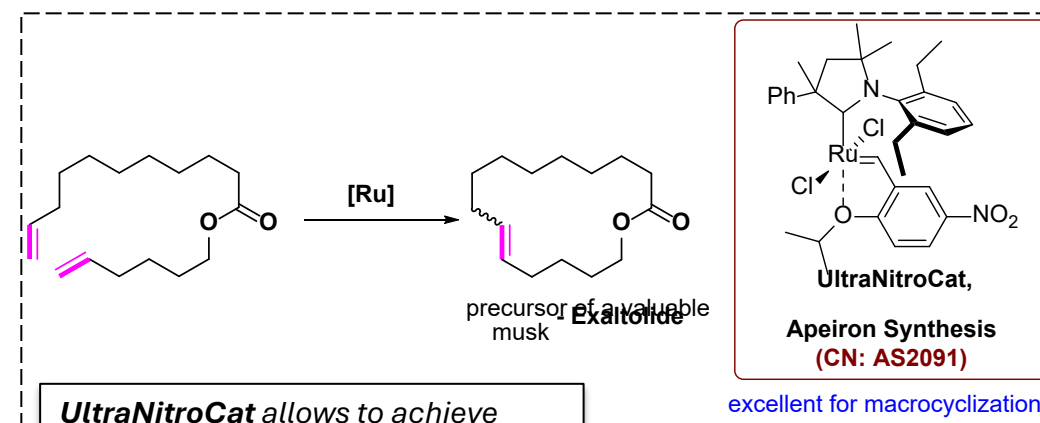
Ru1 (Nitro-Grela,  
Apeiron Synthesis S.A.  
CN: AS2032)

*Ciluprevir, the first such macrocycle reported, failed in clinical trials; nevertheless, its synthesis remains important as the first commercially viable large-scale RCM macrocyclization that influenced a number of subsequent synthetic approaches to other anti-HCV macrocycles*

## Cross Metathesis Reaction in the Synthesis of Pheromones



## Macrocyclization (Ring-Closing Metathesis) reaction in the production of valuable musks

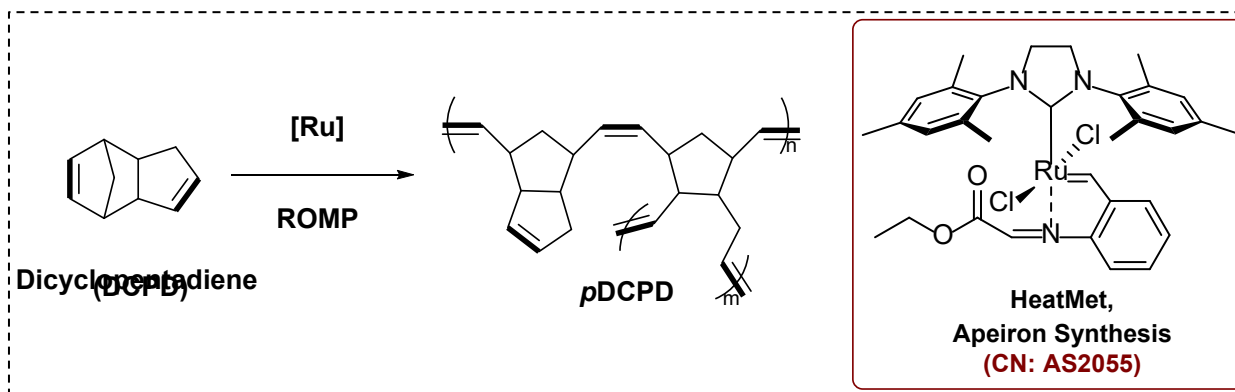


**UltraNitroCat** allows to achieve outstanding results of macrocyclization at low loadings of the catalyst (10 ppm, TON 62 000)

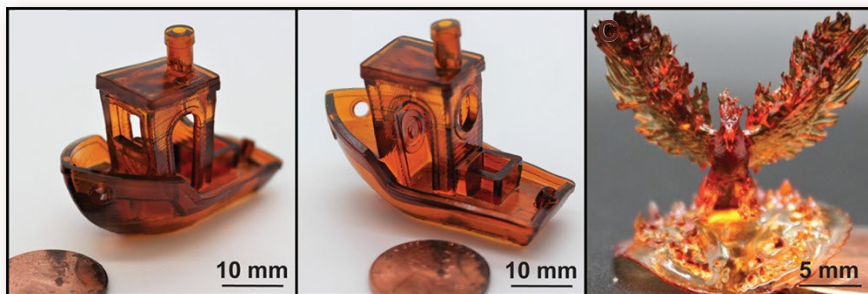
**Exaltolide** – a wonderful and versatile musk has been in steady use since its discovery in 1930 first as a secret component of many great bases, but then directly in fragrances such as the original **Miss Dior** created in 1947



## Photo-Ring-Opening Metathesis Polymerization Reaction of DCPD



A truck hood made of pDCPD



Stereo-Lithography Additive Manufacturing (SLA AM)  
printed structures from pDCPD resins

**HeatMet** proved to be an excellent  
Ru catalyst in ROMP reactions!

- The **metathesis reaction** is a powerful and efficient tool in chemical synthesis (FGs compatible, green solvents, water, high atom economy, etc.).
- Apeiron Synthesis offers a **large product portfolio of ruthenium catalysts** and **related supporting services**.
- Moreover, Apeiron Synthesis offers **CDM services** for intermediates and final products obtained from the metathesis reaction.
- **Strong tech support** provides efficient use of the metathesis catalysts in industrial processes.

**Thank you!**

**Booth 906**

Dr. Mariana Nadirova

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