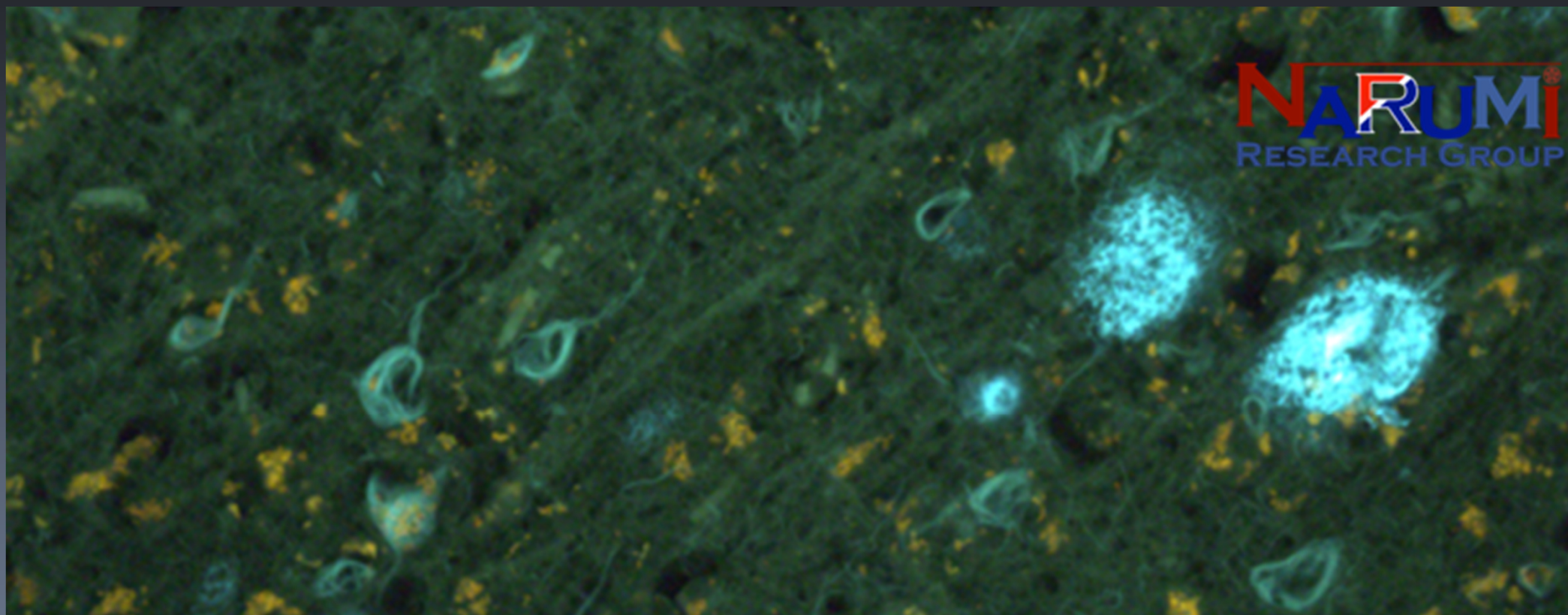


サイエンスカフェ in 静岡 2018年 3月29日
B-nest 静岡市産学交流センター, 静岡市



人類の健康と福祉に貢献する分子科学：
医薬品開発を加速する分子のチカラ

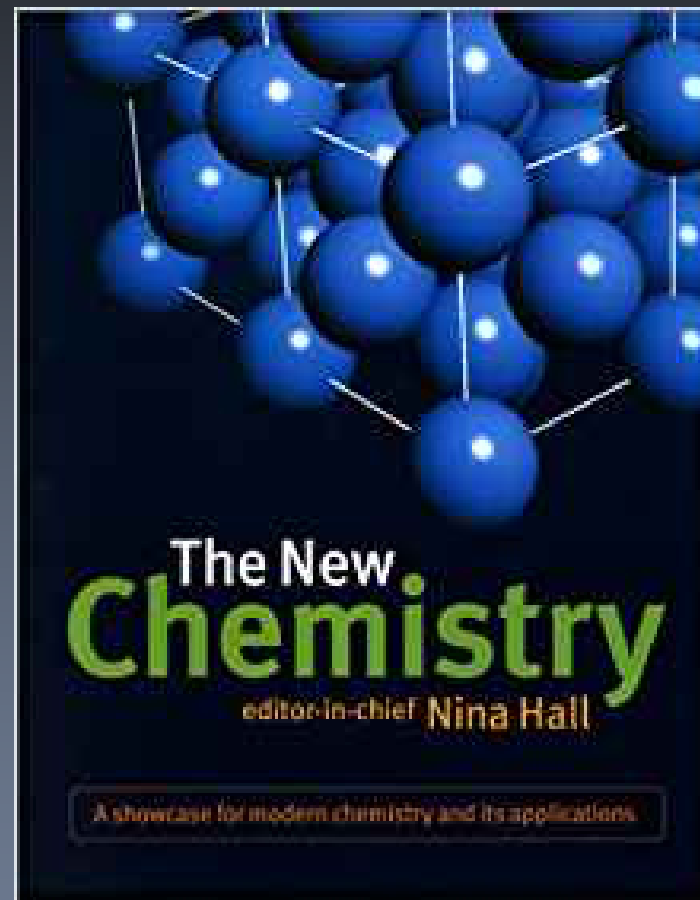
TETSUO NARUMI, PH.D.

*Research institute of Green Science and Technology,
Shizuoka University*

What is the Essence of Organic Chemistry?

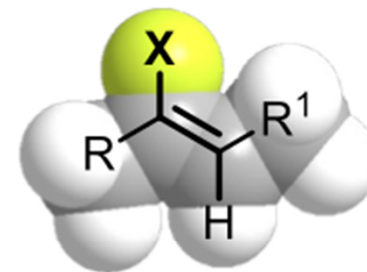
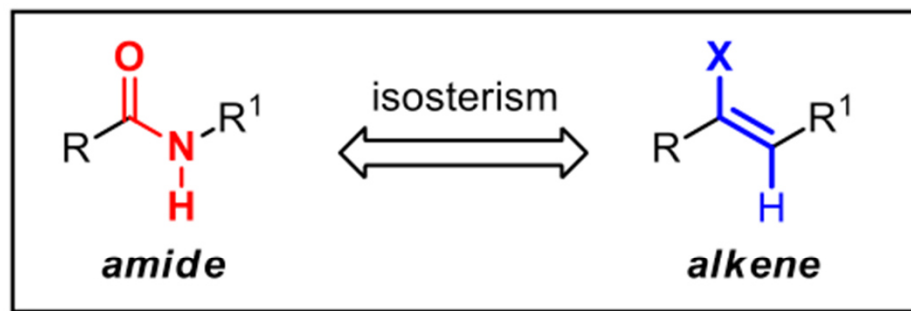
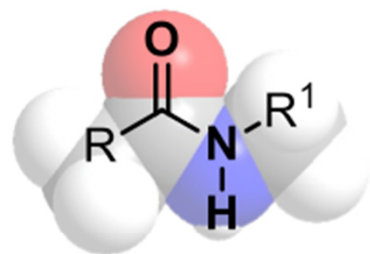
“Although natural products may present the ultimate and most attractive synthetic challenges, designed molecules provide exiting opportunities beyond those associated with their syntheses. ”

“Generating new substances and investigating their properties gives the synthetic chemist an awesome power and a sense of freedom of expression that is normally reserved for artistic endeavors. ”

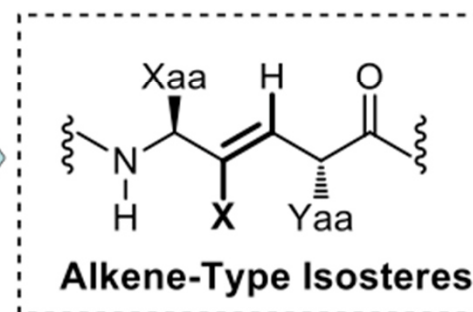
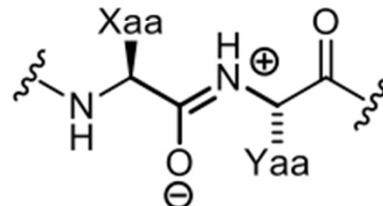
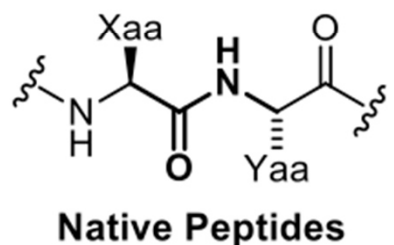


From *The New Chemistry* P171.

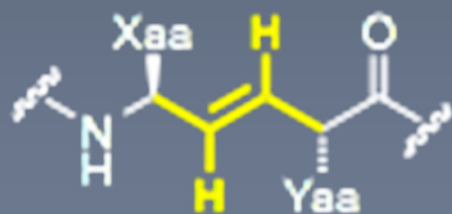
切れるペプチドを「切れない」ペプチドへ



Hann, M.M. et al., *J. Chem. Soc., Perkin Trans. 1.*, **1982**, 307.
 Abraham, R.J. et al., *Tetrahedron*, **1986**, 42, 2101.
 Wipf, P. et al., *J. Org. Chem.*, **1998**, 63, 6088.

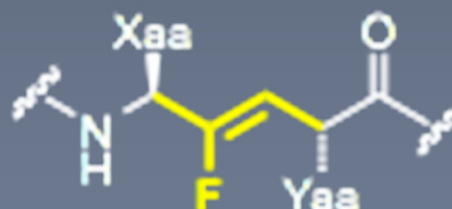


- Ground-State Amide Equivalents
- Peptidomimetics for Medicinal Chemistry
- Chemical Probes for Biochemistry



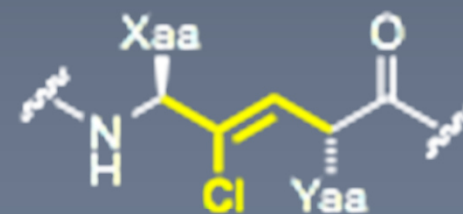
(E)-Alkene Isostere

J. Med. Chem., **2005**, 48, 380.
Chem. Commun., **1997**, 2327.



(Z)-F-alkene Isostere

Tetrahedron, **2008**, 64, 4332.
J. Org. Chem., **2004**, 69, 1634.

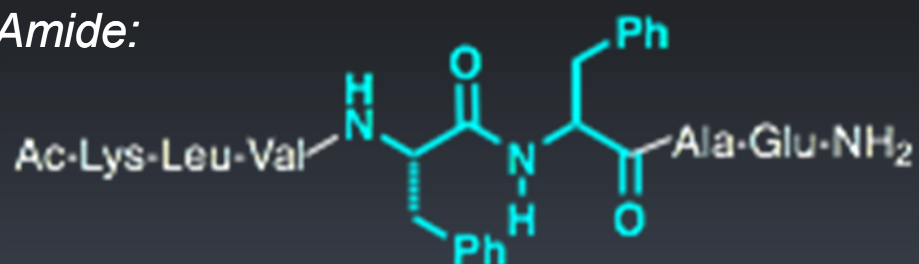


(Z)-Cl-alkene Isostere

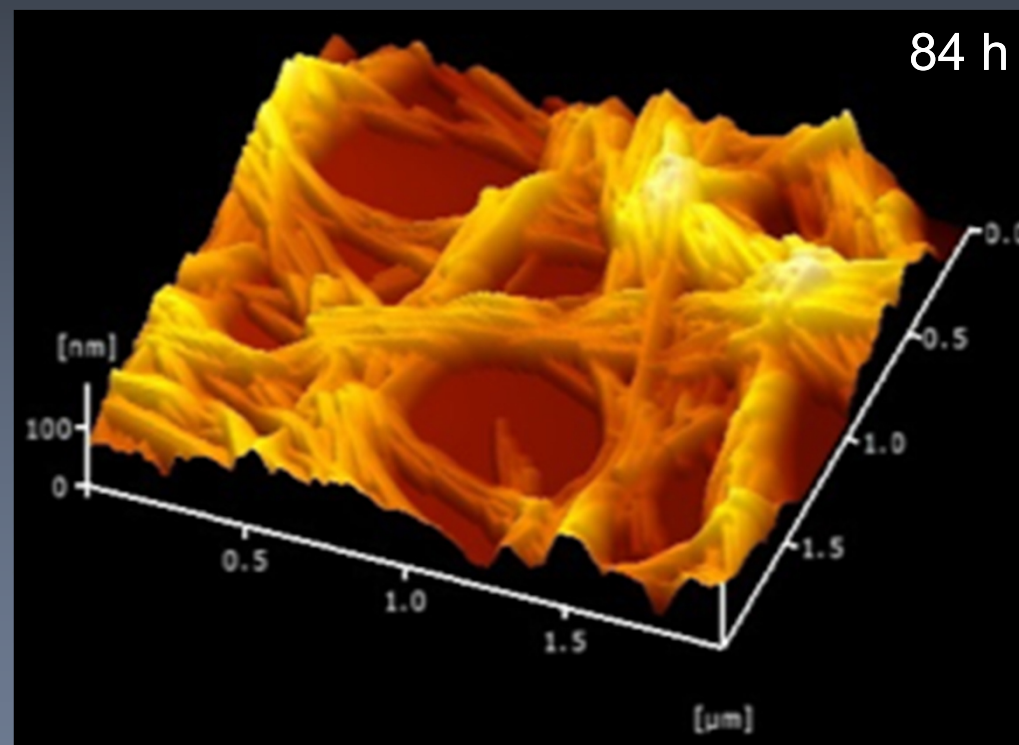
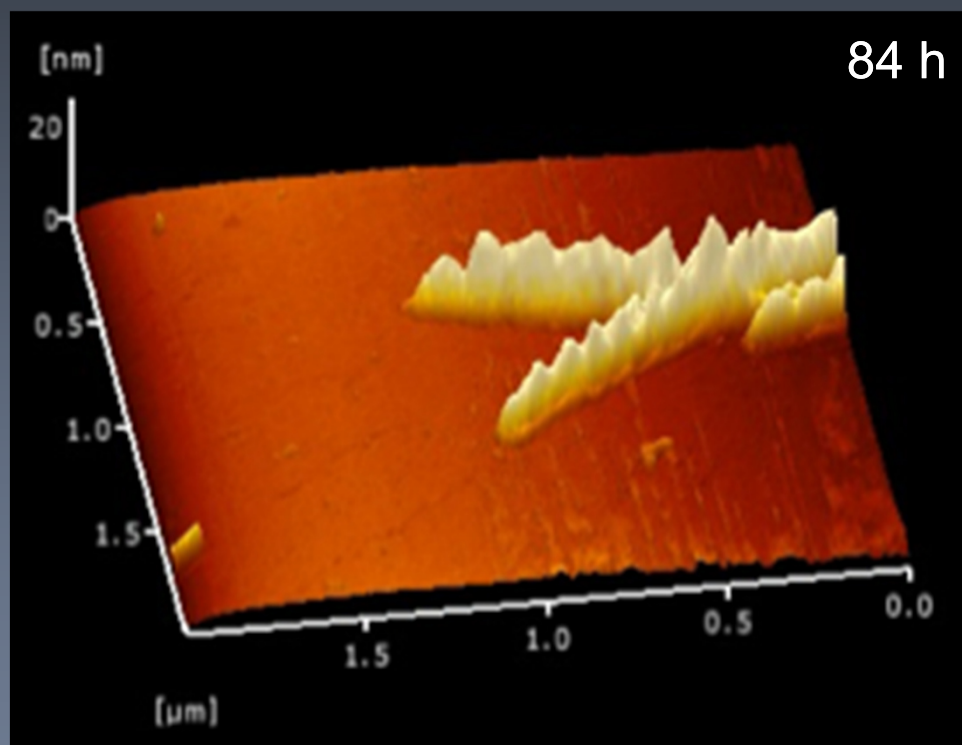
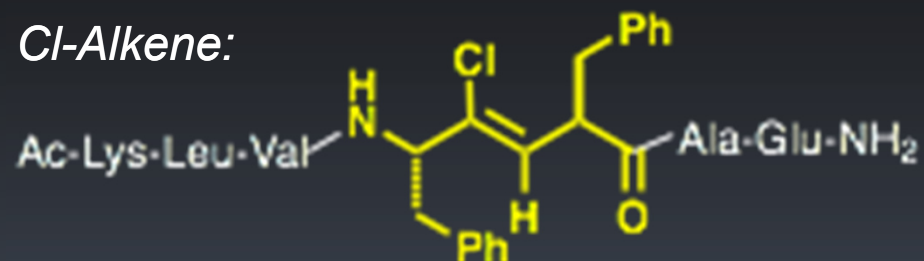
Org. Lett. **2012**, 14, 4490.
Org. Lett. **2015**, 17, 2302.

AFM Analysis of Fibril Formation of Pseudopeptide

Amide:



Cl-Alkene:



Aggregation condition: 640 μ M in MOPS buffer solution at 37 $^{\circ}$ C.

Atomic force microscopy (AFM) images were captured in the dynamic force mode in aqueous solution at room temperature using a **SPI3800N**. A V-shaped Scan Asyst Fluid+ cantilever with a spring constant of 37 N/m. The obtained images were analyzed using the AFM software **NanoScope version 1.40** and **Image J**.