

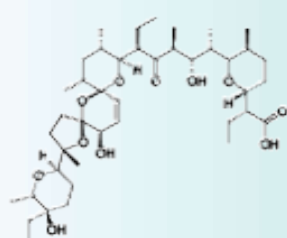
# Terpenoid-like Library

## Unprecedented Diversity of Oxygen-enriched Scaffolds through Biomimetic Transformations of Terpenoids

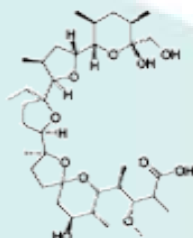
It is increasingly recognized that an overwhelming structural diversity of terpene-derived natural products provides a very rich source of inspiration for medicinal chemists, helping them to design new drugs for the treatment of challenging human diseases. Specifically, several marine toxins with polyether pharmacophores have found their application as promising anticancer or anti-infective agents [1,2]. It is believed that small drug-like molecules containing a similar distribution of oxygen atoms within a polycyclic framework may demonstrate similar biological effect to their natural product prototypes, but with a greater efficacy and specificity to a certain molecular target [3,4].

ASINEX has developed a synthetic toolbox which has enabled us to generate a unique library of skeletally diverse (saturated fused-, spiro- systems) highly oxygen rich molecules. The synthetic strategy is based on biomimetic transformations of natural terpenoid products, such as NOPOL, NEROL and GERANIOL, into novel polyether derivatives. These cyclic molecules contain several versatile functionalities (OH, NH, COOH) which are amenable to further medicinal chemistry exploration. The final compounds can be achieved in 5-9 steps using a cascade of reactions with high enantio- and/or diastereoselectivity, including the regioselective olefin alkylation, the Shi epoxidation and the tandem epoxide opening-cyclization. The stereochemistry of all key intermediates has been confirmed by X-ray crystallography and 2D-NMR. These intermediates are available for follow-up chemistry in gram quantities.

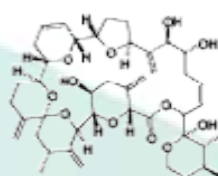
### Cyclic Polyethers in Nature



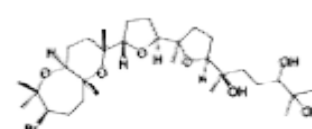
**Salinomycin**  
anti-cancer  
*Streptomyces albus*



**Menensin A**  
Polyether antibiotic  
*Streptomyces cinnamonensis*



**Goniolomin A**  
Antifungal agent  
*Gonoloma pseudogniulax*



**(+)-Auriol**  
anti-cancer  
*Dicellaëa auricularia*

### ASINEX's Terpenoid-like Library

