



# Norine, Florine, s2m : powerful bioinformatics resource and tools for the discovery of novel nonribosomal peptides, natural metabolites with versatile activities

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## ► To cite this version:

Qassim Esmaeel, Yoann Dufresne, Areski Flissi, Maude Pupin, Philippe Jacques, et al.. Norine, Florine, s2m : powerful bioinformatics resource and tools for the discovery of novel nonribosomal peptides, natural metabolites with versatile activities. FEMS 2017 - 7th congress of Federation of European Microbiology societies, Jul 2017, Valencia, Spain. hal-01888999

HAL Id: hal-01888999

<https://hal.archives-ouvertes.fr/hal-01888999>

Submitted on 5 Oct 2018

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# Norine, Florine, s2m : powerful bioinformatics resource and tools for the discovery of novel nonribosomal peptides, natural metabolites with versatile activities

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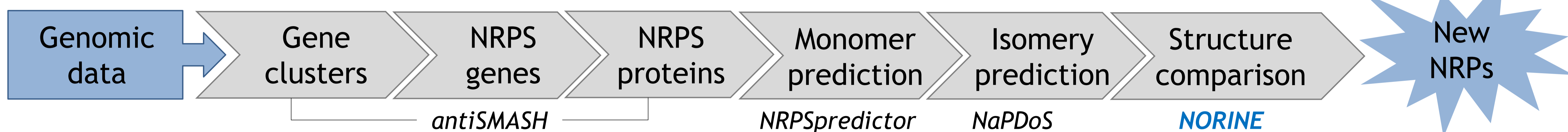
NonRibosomal peptides (NRPs) are a huge untapped resource of natural products displaying activities with applications in health (i.e. antibiotics) or in biocontrol (especially siderophores and lipopeptides with antifungal activity). NRPs are microbial secondary metabolites produced by enzymatic complexes, so-called non-ribosomal peptide synthetases (NRPSs). These modular assembly lines work step by step to build the peptides, each module adding one monomer to the peptidic chain. Considering the modular organization of NRPSs, and the structural specific features of the NRPs, dedicated bioinformatics tools have been developed with the aim of accelerating the screening for new active metabolites.

## ❖ NORINE <http://bioinfo.cristal.univ-lille.fr/norine/>

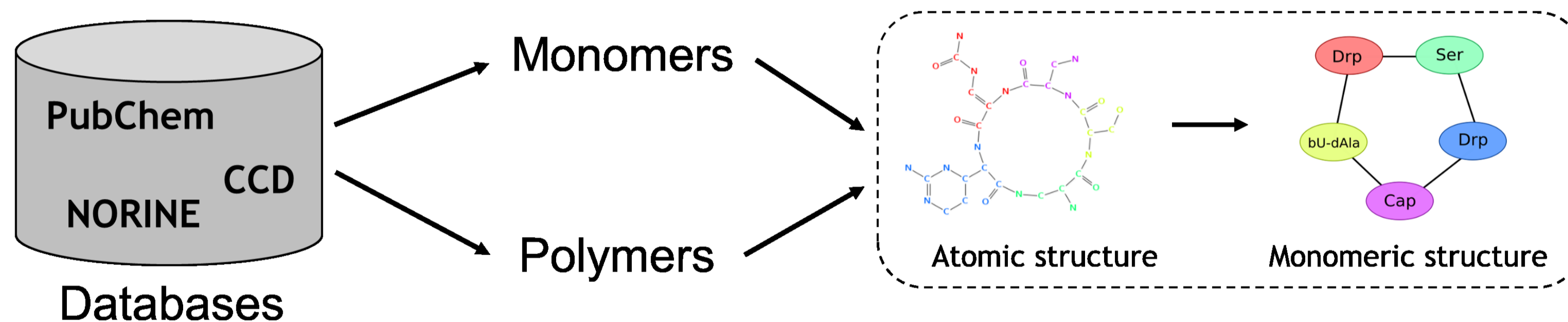
- A unique database containing more than 1200 annotated NRPs
- Now open to crowdsourcing (Flissi et al., 2016)



## ❖ Florine workflow : from genomic data to the discovery of new NRPs (Caradec et al. 2014)



## ❖ Smiles2Monomers <http://bioinfo.cristal.univ-lille.fr/norine/smiles2monomers.jsp>



- A software to infer monomeric structure of polymers from their atomic structure (Dufresne et al. 2015)

## Burkholderia genome mining : a user case

