



BiRC Seminar – open to all

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Time: Friday 26 February 2016, 14:15 – 15:00

Venue: BiRC, C. F. Møller's Allé 8, Building 1110-223

Title: Fighting Superbugs with Open Source Software: antiSMASH and other tools

Abstract:

Antibiotics are one of the most important discoveries in medical history. They form the foundation of many other fields of modern medicine, from cancer treatments to transplantation medicine. Unfortunately, antibiotics are liable to misuse, and have been widely misused, giving rise to an ever-growing number of resistant bacteria, often called superbugs.

Medical professionals all over the world are increasingly encountering superbug infections that are untreatable by any available antibiotics. New classes of antibiotics that can sidestep the common resistance mechanisms are desperately needed. Unfortunately, the pipeline for discovering new antibiotics has all but dried up. From 1935 until 1968, 14 new classes of antibiotics were discovered. Since then, only five further classes have been added to our arsenal. The superbugs seem to be winning the arms race.

Fortunately, the cloud has a silver lining. About 70% of the clinically used antibiotics are produced by a group of bacteria, the actinomycetes. With the recent surge in genome sequencing technology, it is becoming clear that many actinomycetes - as well as other bacteria and fungi - carry a large, untapped reservoir of further potential antibiotics. In order to assist lab scientists in discovering these new antibiotics while lowering the re-discovery rate of already known substances, new search strategies are needed.

antiSMASH is a fully Open Source tool to assist life scientists in the discovery of new drug leads. Since its initial release in 2011, it has become one of the most popular tool in the area of antibiotics discovery. Standing on the shoulder of giants, antiSMASH in turn leverages many Open Source life science tools to do its job, providing state-of-the-art bioinformatics analyses via an accessible, easy to use web interface.

This talk will give an introduction to the biological and medical background of antibiotics, superbugs and the rise of resistances. Additionally, it will give an overview on how antiSMASH and other Open Source tools and libraries help in the search for new antibiotics, giving humanity a leg up in the arms race against the superbugs.

After the seminar there will be beer/soda and chips in the lunch room!

