



The 120th RIKEN

BRC SEMINAR

日時：2014年 2月 27日（木） 13:30～14:30

場所：バイオリソースセンター 1 階 森脇和郎ホール

Dr. Alistair C. Darby

Centre for Genomic Research, University of Liverpool, UK

The evolution of obligate symbionts and their response to stress

There has been a substantial effort to understand the evolution of microbial genomes in association with eukaryotic hosts, but very little is known about how symbionts respond to the stresses of symbiosis. The bacterium *Wolbachia* (order Rickettsiales), representing perhaps the most abundant vertically transmitted microbe worldwide, infects arthropods and filarial nematodes. In arthropods, *Wolbachia* can induce reproductive alterations and interfere with the transmission of several arthropod-borne pathogens. Additionally, *Wolbachia* is an obligate mutualist of the filarial parasites that cause lymphatic filariasis and onchocerciasis in the tropics. Targeting *Wolbachia* with tetracycline antibiotics leads to sterilisation and ultimately death of adult filariae. However, several weeks of treatment are required, restricting the implementation of this control strategy. To date, the response of *Wolbachia* to stress has not been investigated and almost nothing is known about global regulation of gene expression in this organism. Despite its highly reduced genome, *Wolbachia* shows a surprising ability to regulate gene expression during exposure to a potent stressor. These findings have general relevance for the chemotherapy of obligate intracellular bacteria and the mechanistic basis of persistence in the Rickettsiales.

連絡先：微生物材料開発室

大熊 盛也 (mohkuma@riken.jp)

