【報告様式Ａ】

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日本医療研究開発機構　創薬等ライフサイエンス研究支援基盤事業
事後評価報告書

公開

Ⅰ 基本情報

補助事業課題名：　（日本語）創薬等ライフサイエンス研究支援基盤事業
（プログラム名）　（英　語）Platform Project for Supporting Drug Discovery and Life Science Research

実施期間：平成 29 年 8 月 25 日～令和４年３月 31 日

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Ⅱ 補助事業の概要

Analysing photosynthetic light-harvesting reaction centre complexes of different photosynthetic bacteria.
The LH1-RC complex of several photosynthetic bacteria was analysed by cryo-electron microscopy. The data gave new insight in the stabilising function of calcium ions connecting the inner and outer protein ring of the complex. Calcium ions are involved in thermostability and the wavelength of the light that is absorbed by the complex.

Disassembly of the apical junctional complex during the transmigration of Leptospira interrogans across polarized renal proximal tubule epithelial cells.
Leptospira is an endemic bacterium living in still waters among other of Okinawa. The bacteria can cross endothelia and infect kidney but in some cases they can also cross the blood brain barrier to cause brain infections. This study unraveled the mechanism of how these bacteria cross the endothelium.

Visualizing nudivirus assembly and egress
Nudivirus infects Oryctes rhinoceros, the rhinoceros beetle. This beetle is a pest that affects and destroys important crops like coconut and oil palm trees. The nudivirus is

investigated to be used as a biological pest control. In this research we studied the development of the virus in the nucleus of cells of the beetle.

Teaching cryo-electron microscopy

We setup a programme to teach all processes for successful determination of the molecular structure of proteins. The student joins the lab for a month and goes through all the steps, quality control of the protein, sample preparation, imaging by cryo-electron microscopy and solving the structure of the protein under investigation. The course supports the education of Japanese researchers to strengthen research in drug development.

In addition to this course we setup an annual cryo-electron microscopy course. During 1 week the students get in touch with the cryo-electron microscopy. This course is supported by the members of the Japanese cryo-electron microscopy community. This way the students not only get basic knowledge in cryo-electron microscopy but also can setup their national network with eminent scientists. In addition the keynote lecture is given by an internationally highly esteemed scientist, among others, Nobel Laurates.