

## PhD theses **in a nutshell**

### **Emaciation**

Cachexia is the extreme emaciation that accompanies serious illnesses such as cancer. The hypothalamus plays a central role in that emaciation and muscle atrophy. Xiaolin Li studied the interplay between the tumour, the hypothalamus and the intestines in cachexia caused by bowel cancer. In patients with cachexia, the mitochondria (the little energy factories) in the muscles don't work properly. That reduced functioning is visible before the disease reveals itself and is accompanied by changes in blood values. So Li may be on the trail of an indicator for cachexia. <sup>RK</sup>

*Cancer Cachexia as Multi-organ Syndrome.* Xiaolin Li ◀ Supervisor Renger Witkamp

### **Artificial life**

Can you create a living cell? And what is life, actually? According to Lorenzo Olivi, one of the requisites is definitely replication. So he investigated how the DnaA protein, which sets the replication of DNA (reproduction) in motion, can be guided in a controlled fashion in E-coli. In order to reveal the process, he made use of sptPALM, a microscopic technique for tracking a single DnaA molecule in the cell. A synthetic cell is by no means in sight yet. But this is an interesting thesis which paves the way for the controlled synthesis of life. <sup>RK</sup>

*To Rebehold the Cell.* Lorenzo Olivi ◀ Supervisor John van der Oost

### **Disturbed forest**

Disturbances to tropical forest can be charted using satellites. The availability of more and more detailed images is facilitating this inspection tremendously. Johannes Balling linked the data from those images to data on rainfall and fires in Africa. With predictable conclusions: the less the rainfall, the more disturbance is caused by forest fires. And the more accessible the forest, the more disturbance there is too. <sup>RK</sup>  
*Temporally-dense multi-source satellite remote sensing for advancing the monitoring and characterization of tropical forest disturbances.*

**Johannes Balling** ◀ Supervisor  
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