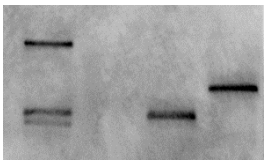
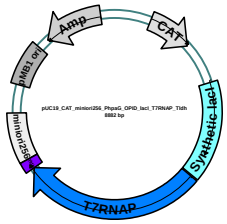
Master-/Diplomathesis

Improvement of recombinant protein secretion in *Lactobacillus plantarum*

Lactobacillus plantarum is widely used in food processing and silage, thus showing promising applicability as probiotic agent. For example, *Lactococcus lactis* secreting interleukin-10 has been shown to reduce bowel abnormalities in experimental models of colitis[1]. Independently, secretion of recombinant protein is also feasible for silage processes (e.g. *Bacillus subtilis* phytase[2]).
Secretion of recombinant proteins in *Lactobacillus plantarum* is, however, not yet fully understood and thereof, not exhausted. New, prominent tools, such as secretion signals in combination with strong, inducible promoters, are needed but basic genetic tools have already been established in our lab and make *L. plantarum* an optimal organism to work with[3].

We are looking for a master/dimplomastudent to work on improving secretion of recombinant proteins in *L. plantarum.*





The work will include:
- vector design and cloning for *E. coli* and *L. plantarum* (Gram-negative and Gram-positive working models)
- basic molecular biology (PRC, quantitative and qualitative analyses, enzymatic assays, FACS,…)
- input as you like

Duration: 6-8 months; Start: July 2013

For further information visist:
www.lactomics.com

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1) Steidler L, Hans W, Schotte L. Treatment of murine colitis by *Lactococcus lactis* secreting interleukin-10. Science 2000: 289:1352–1355
2) Kerovuo J, Tynkkynen S. Expression of *Bacillus subtilis* phytase in *Lactobacillus plantarum* 755. Letters in Applied Microbiology 2000, 30, 325-329
3) Spath K, Heinl S, Grabherr R. Direct cloning in *Lactobacillus plantarum*: electroporation with non-methylated plasmid DNA enhances transformation efficiency and makes shuttle vectors obsolete. Microb Cell Fact. 2012 Oct 25;11:141