Projects in PHARMACOMETRICS

The modelling and analysis of pharmacological data

- Used in extensively by Novo Nordisk and other pharmaceutical companies
  - For research and development
  - Discovery of new drug candidates
  - Characterization of potential new drug candidates

- PerBB collaborated since 2003 with Novo Nordisk
  - 2 Industrial PhD projects
  - A number of master projects
  - Since Nov 2015: Also formally part time contracted with a newly started pharmacometrics group in Novo Nordisk Insulin Pharmacology Research, Måløv site.

Possible project elements:
- Working with data from Novo Nordisk or another pharmaceutical company
- Development of R-packages for specified analyses
- Learning about pharmacometrics
- Learning about and working with
  - Mixed linear models – linear and non-linear
  - Statistical aspects of non-linear PK/PD-modelling
  - Chemometrics and multivariate regression methods such as PCA, PCR, PLS and the like.
  - Functional PCA
  - Various approaches for investigating variabilities in PK/PD profiles
- Statistical learning methods for pharmacological data

A few references:
- In silico modelling of permeation enhancement potency in Caco-2 monolayers based on molecular descriptors and random forest. / Welling, Søren Havelund; Clemmensen, Line Katrine Harder; Buckley, Stephen T.; Hovgaard, Lars; Brockhoff, Per B.; Refsgaard, Hanne H.F. In: European Journal of Pharmaceutics and Biopharmaceutics, Vol. 94, 2015, p. 152-159.
- Presentation by Novo Nordisk Senior Scientist Hanne Refsgaard: http://www2.compute.dtu.dk/courses/introstat/slides/Statistics%20in%20Research%20at%20NN.pdf

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