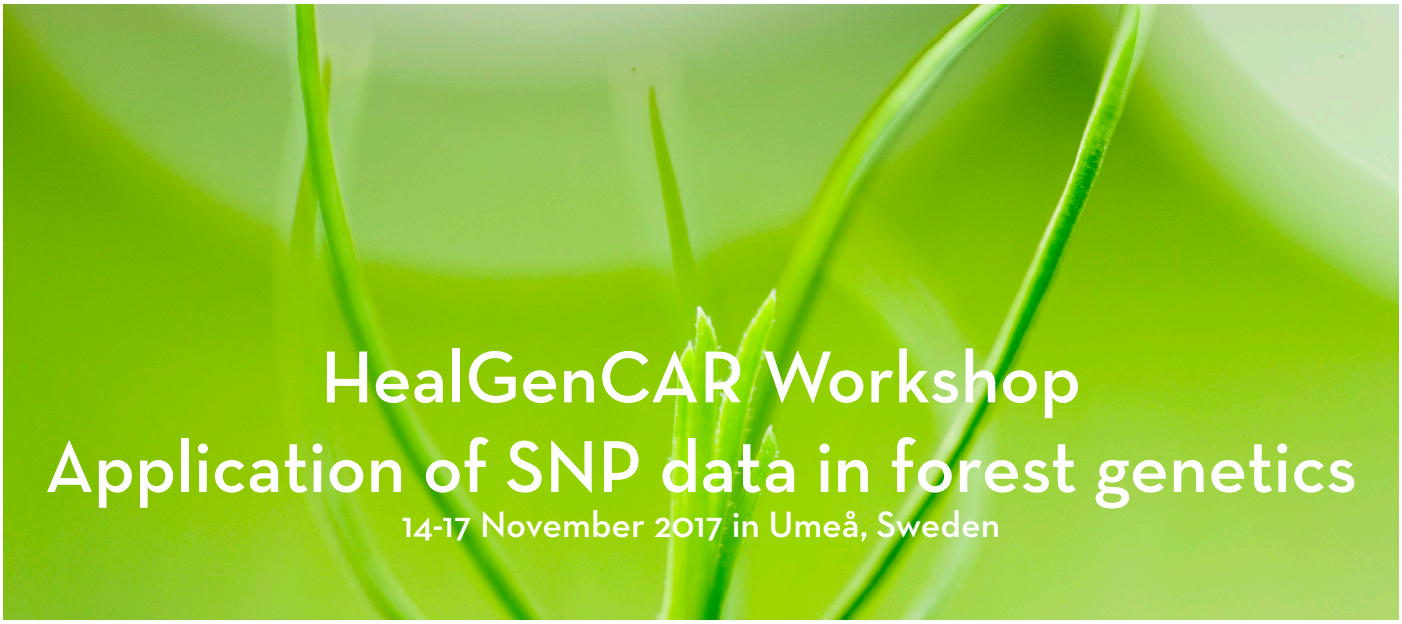

HealGenCAR Workshop
Application of SNP data in forest genetics

14-17 November 2017 in Umeå, Sweden

We are pleased to announce a HealGenCAR workshop on the utilization of SNP data in areas of forest genetics, with special focus on genomic prediction and selection.

The rapid increase in the SNP data and analysis methods brought a new era of using genomics in selection, breeding and deployment. The purpose of the workshop is to summarize both the theoretical progress and application of genomics to tree breeding, in an easily accessible educational package.

The workshop is aimed at doctoral students and researchers, but also established breeders who want to enrich themselves in the subject area. The workshop will be carried out at the Swedish University of Agriculture Sciences (SLU), Umeå, Sweden. The teaching will be by Professor Harry Wu and Dr. Henrik Hallingbäck at SLU, and Professor Fikret Isik, North Carolina State University, Raleigh, USA.

Venue and lodging
The venue for the workshop is the University of Agriculture Sciences building (Skogsmarksgränd 17, Umeå), in lecture room "Datorsal 3A/3B", floor 5. Coffee break and lunch will be available in the area adjacent to the lecture room. A group dinner will be organized on Thursday evening 19:00 at restaurant REX downtown Umeå. Other dinners are planned on a self-catering basis. The costs for coffee, lunch and the group dinner on Thursday evening are included in the registration fee. Rooms are available at Hotel Aveny, Rådhusesplanaden 14, UMEÅ at 100 Euro per single room per night.

Travel directions to Umeå and Umeå University Campus area, and a map of downtown Umeå including the location of restaurant REX can be found under the links:

http://www.umu.se/english/umea/getting-to/directions
https://www.visitumea.se/en/book/to-do/a470291/rex-ume%c3%a5/showdetailsma pinfo?filter=c%3D24307

Registration
There is a registration fee of 100 Euro. Notify at registration if you want a room booked for you, the arrival and departure date and if you have special requests concerning food.

Please register directly to Anita Roos at *anita.roos@skogforsk.se*. Course fee must be paid upon registration to IBAN no SE6212000000013970108209. Danske Bank, Box 1513, 751 45 UPPSALA, BIC/SWIFT: DABASESX. Other questions regarding the program can be sent to Torgny Persson at: *torgny.persson@ skogforsk.se*. Deadline for regis-tration is Friday 29th September 2017.

Special student offer!
The HealGenCar project will provide support for eight students (at least one student per Nordic or Baltic country) to participate in this course. HealGenCar will pay for the participation fee, accommodation (if needed) and the travel costs (low fare). In order to be considered for this support, students are asked to write a short justification (400 words max.), explaining why this course is im-portant for their particular study and submit this justification upon registration. In case more than eight students apply for support, the HealGenCar core group will make a selection on the basis of these justifications. Applicants will be informed about the decision within a week after the registration deadline.

Course schedule on next page.

Preliminary Course Schedule

There will be 4 tutorial periods per day, 90 minutes each, between 9:00 and 16:30, including lunch break between 12:00 and 13:00. The following topics will be reviewed:

Tuesday 14th
9:00 Opening and start of first lecture: Review of Mixed Linear Models
- Overview of R programming
- Review of ASReml-R
- Examples of progeny test data analysis with ASReml-R

Wednesday 15th
- Exploratory Marker Data Analysis
- From Pedigree to Genomic Relationship Matrix
- The concept of QTL, GWAS and MAS
- The concept of genomic prediction and selection: training and validation

Thursday 16th
- Genomic prediction models based on the relationship matrix
- Genomic prediction models based on whole-genome regression models
- Examples of cross validation

19:00+ Group dinner at restaurant REX, downtown Umeå

Friday 17th
- Imputation of missing genotypes
- Discussions and wrap-up
- 12:00 Lunch and thereafter depart for train and airport

Teaching Material: The workshop will follow the text book "Genetic Data Analysis for Plant and Animal Breeding" by Isik, Holland and Maltecca, which is expected to come out soon. Code examples and data sets will be provided as covered in the book chapters.

Nordic Forest Research (SNS) is a cooperating body financed with Nordic funds under the auspices of the Nordic Council of Ministers. The overall purpose of SNS is to promote research that highlights the diverse functions of the forests in sustainable forestry, as well as to advise the Nordic Council of Ministers on questions concerning forests and forest research. SNS supports Virtual Centres of Advanced Research (CAR). A CAR is a network with a specified core of scientific subject, where research is carried out in a decentralised manner. See http://www.nordicforestresearch.org/sns-research/. HealGenCAR is a CAR in Forest Health and Forest Genetics to enhance Bioeconomy (2016 – 2020). The overall objective of HealGenCAR is to support development and implementation of good practices for use and management of forest genetic resources, as well as pest and disease management to the benefit of Nordic societies. The specific objective of HealGenCAR is to enhance a Nordic research environment by continuing the long tradition in collaboration in forest genetics, pathology, entomology and breeding in the Nordic and Baltic region. See http://www.nordicforestresearch.org/healgencar/