Long gone is the time when andrology only concerned diseases affecting the male reproductive organs, often in connection to urological problems unique to men, such as prostate dysfunction and cancer. Today, andrology considers far more topics, from infertility to the metabolic syndrome (MS), a series of metabolic risk factors that increase the predisposition of an individual to atherosclerotic vascular disease, hypertension and type-2 diabetes.

Involuntary childlessness is considered a societal disease, in Sweden having passed 10% national incidence. A large proportion of the cases are male factor-related, yet without providing any cues to the etiology of the dysfunction, which is also difficult to discern in the 30% of infertile couples branded “unknown etiology”. Assisted reproductive techniques (ART) as IVF/ICSI had ameliorated this condition answering, in Sweden, for 3% of the babies born/year. Yet, ART-birth rate reached a plateau in 1996, yet remaining at this low level since then (25-28%). Customary clinical and semen evaluation suffers from a diagnostic shortage and fails to discriminate between fertile and infertile men beyond grave cases of asthenozo- or oligospermia; logically requiring methods as exploration of chromatin integrity or sperm DNA methylation with stronger power to indicate why a man is infertile. Despite the paternal genome actively demethylates post-fertilization, some sites are not reset and these maintained methylation marks pass to the offspring. If these epigenetic marks are abnormal or the degree of DNA methylation of imprinted genes is too high, the offspring can be defective, including those visible at adult life, and even in sperm production of the next-coming generation.

Endocrine regulation of the male genital organs, run along the endocrine homeostasis of the entire organism and dysfunctions are reflected in metabolic syndrome that follow up the male onto geriatric age. How the interactions are interrelated require a holistic view of the medicine of the male, from the fetus to the elderly. The brain being a target for male hormones, the scenario evolves in sexological, identity and well-being problems. The documented increase of neurodevelopmental disorders such as autism spectrum disorder (ASD) and attention deficit and hyperactivity disorder (ADHD) have raised attention to paternal aging as one of the risk factor contributing to the problems. increased over the last few decades. With the increasing evidence that environmental factors, including exposure to pharmaceutical and toxic chemicals, diet or stress, pre-conception, intra-utero or even post-natal are able to modify the expression of genes and lead to dysfunction by modifications in the epigenome, which can have lasting effects on development, metabolism and health even at later age, evidencing profound alterations of the epigenetic profile of the male, that could well be passed over generations.

This two-day research education seminar (Code MF-8FO0097, 1.5 ECTS), intends to gather researchers working in different aspects of andrology, urology, endocrinology, behavior, genomics/epigenetics, from basic research to epidemiological, animal and human cohort studies, bridging animal models with clinical human medicine. The goal is to provide a broad spectrum of research and current knowledge on the health of men (reproductive and during ageing) for graduate students, junior researchers and clinicians stimulating future research projects and the improvement of personalized medicine.
Programme

Day 1 (Wednesday 23 August 2017)

11.00- Registration opens (Lecture Hall “Eken” Entrance 65, US campus, LiU)

12.00- Get-together (light lunch)

Programme starts - Moderator: Prof Heriberto Rodriguez-Martinez, IKE, Linköping University

13.00-13.15- Introduction to JSPS and SAC: Director JSPS Stockholm office and SAC-Chair

Semen evaluation trends

13.20- “Does osmolarity play a role in ART outcome?”, Ulrik Kvist, Karolinska Sjukhuset (ulrik.kvist@ki)

13.40- ”Sperm quality: are we using the proper sperm analysis tools?” Manuel Alvarez-Rodriguez, IKE, Linköping University (manuel.alvarez-rodriguez@liu.se)

14.00- ”Ejaculate characteristics and age”, Lars Björndahl, Karolinska Sjukhuset (Lars.Bjorndahl@ki.se)

14.30- Coffee/Tea break

ART

15.00- ”Reproductive health in men born small for gestational age”, Prof Gunilla Sydsjö, University Hospital, Linköping (gunilla.sydsjo@regionostergotland.se)

15.20- ”Assisted reproduction in men with low birth weight”, Dr Susanne Liffner, University Hospital, Linköping (susanne.m.liffner@regionostergotland.se)

The ageing male

15.40- “The ageing man”, Reidar Källström, Urologen, University Hospital, Linköping (LIU (Reidar.Kallstrom@regionostergotland.se)

16.00- ”Testosterone replacement therapy in the aging male”, Bertil Ekman, Endocrinology, University Hospital, Linköping (Bertil.Ekman@regionostergotland.se)

16.20- ”Testosterone in forensic medicine”, Yvonne Lood, The National Board of Forensic Medicine, RMV (yvonne.lood@rmv.se)

16.45- ”The metabolic syndrome and male ageing: effects on the offspring”, Prof Noriko Osumi, Department of Developmental Neuroscience, Tohoku University Graduate School of Medicine, Sendai, Miyagi, Japan (osumi@med.tohoku.ac.jp)

18.00- General Discussion

18.30- Reception/Dinner
Day 2 (Thursday 24 August 2017)

Gender

08.30- “Born in the wrong body”, Gunnar Kratz, University Hospital, Linköping (gunnar.kratz@regionostergotland.se)

09.00- “Testosterone treatment in transsexual female to male”, Jeanette Wahlberg, Endocrinology, University Hospital, Linköping (Jeanette.wahlberg@regionostergotland.se)

09.30- Coffee/Tea break

10.00- “Gender dysphoria and fertility issues”, Katarina Link (Katarina.Link@skane.se)

10.30- “Fertility preservation among transgender men: experiences among men and health care professionals”, Gabriela Armuand, University Hospital, Linköping (gabriela.armuand@liu.se; gabriela.armuand@regionostergotland.se)

11.00- “Trans-generational and epigenetic effects of endocrine disruptors”, Dr Carlos Guerrero-Bosagna, IFM-Biology, Linköping University, Sweden (carbo@ifm.liu.se)

11.30-General discussion

12.00 -Concluding ceremony: Göran Thor, SAC-Chair & Prof Mats Hammar (IKE/County Univ Hospital)

12.30 Closing lunch
A two-day research education seminar (Code MF-8FO0097, 1.5 ECTS), supported by the Japan Society for the Promotion of Science (JSPS) as a SAC-seminar of FY2017, brings together researchers from different backgrounds to provide a broad spectrum of research and current knowledge on the health of men (reproductive and during ageing) for graduate students, junior researchers and clinicians stimulating future research projects and the improvement of personalized medicine. The full programme is available at: https://old.liu.se/medfak/ike/forskarutbildning/forskarutbildningskurser?l=sv or http://www.jsps-sto.com/activities.aspx

The research education seminar is free of charge.

Sign for participation before **28 July 2017** by sending an e-mail to: heriberto.rodriguez-martinez@liu.se

**Specially invited:**
**Noriko Osumi**, Tohoku University School of Medicine, Sendai, Japan: “The metabolic syndrome and male ageing: effects on the offspring”