Postdoc position

in Human Reproduction Genetics

in Heidelberg

(Fulltime for 3 years; DFG grant):

Major Research topic:

"Molecular control signature of *FMR1*/FMRP expression in human granulosa cells functional during folliculogenesis and for ovarian reserve"

Research projects in my research group (AG "Genetics of Human Folliculogenesis") at *Division of Reproductive Genetics (head: Prof. Dr. P.H. Vogt)* are concentrated on the molecular analysis of genetic and epigenetic regulatory mechanisms controlling *FMR1*/FMRP expression during human folliculogenesis and its putative distortion in some well-known female germ line disorders such as Premature Ovarian Insufficiency/Failure (POI/POF) syndrome and Poor Ovarian Response (POR).

Our aim is to identify the molecular tools functional in genetic germ line networks as the mTOR/AKT/FOXO signal pathway associated with the regulation of *FMR1*/FMRP expression in the female germline cells (oocytes, granulosa cells, theca cells). Our results will help not only to understand much better how these genes/proteins impact **human female fertility**, but also to develop novel starting points for improved molecular diagnostic and therapeutic tools for **infertility treatment and assisted reproductive techniques (ART)**.

Related Publications:

- Genetische Ursachen der prämaturen Ovarialinsuffizienz
  Rehnitz J, Strowitzki T, Vogt PH. Gynäkologische Endokrinologie. Ausgabe 04/2018

- The *FMR1* gene, infertility, and reproductive decision-making: a review.
  Pastore LM, Johnson J.; Front Genet. 2014 Jul 7;5: 195. Review

- Variable expression of the *Fragile X Mental Retardation 1 (FMR1)* gene in patients with premature ovarian failure syndrome is not dependent on number of (CGG)n triplets in exon 1. **Schuettler J**, Peng Z, Zimmer J, Sinn P, von Hagens C, Strowitzki T, Vogt PH: Hum Reprod. 2011 May;26(5):1241-1251.

- *FMR1* and *AKT/mTOR* signaling pathways: potential functional interactions controlling folliculogenesis in human granulosa cells. **Rehnitz J**, Alcoba DD, Brum IS, Hinderhofer K, Youness B, Strowitzki T, Vogt PH. Reprod Biomed Online. 2017 Nov;35(5):485-493.

Your profile

- PhD degree in molecular biology, biochemistry or equivalent (preferable but not essential with topic centered in *Human Reproduction Biology*)
- Splendid expertise in all molecular biology techniques and extensive experience in human cell culture work. Especially: Western blotting, Immunoprecipitations, ChIP, gene expression analysis, PCR, qPCR, cloning, sequencing, ELISA, Fluorescent microscopy, Next-Generation-Sequencing, CRISPR/CAS9, shRNA- mediated knock down techniques
- Excellent personal communication and organization skills (in German & English language)
- Extensive experience in the analysis of complex molecular data using NCBI and ENSEMBL and similar data bases.
- Broad knowledge with ADOBE/COREL DRAW graphic programs, statistical software and bioinformatics online tools (TRANSFAC, CLUSTAL, BLAST, etc).
- English (written and spoken) for publication work, participation in distinct student supervision work for Bachelor and Master research projects & research internships

Contact & Application

Application should be submitted per mail or e-mail as one single PDF-file (max 5 MB) to Dr. Julia Rehnitz (julia.rehnitz@med.uni-heidelberg.de).
Please include an extensive motivation letter, your scientific CV, academic certifications including complete list of publications; 2-3 references of your past supervisors and give your expected availability date.

Please do not send original documents by mail services, since they will not be returned.

For further information you may like to contact: Julia.rehnitz@med.uni-heidelberg.de

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