

Citation:

Research Project entitled '**Identification and Characterization of Sertoli and Leydig Cell Homing Peptides**' undertaken by **Ms. Yugandhara Jirwankar**

The research work entitled "Identification and Characterization of Sertoli and Leydig Cell Homing Peptides" is not only the first study showing the identification of the homing peptides specific to Sertoli and Leydig cells but also the only study to date showing the identification of any kind of ligand molecules targeting Sertoli and Leydig cells which can be used for the development of the new targeted drug delivery systems to the testis.

The identification of peptides is performed with Sanger sequencing and high-throughput NGS. The Sertoli cell and testis targeting potential of the SCHP1, SCHP2, LCHP1 and LCHP2 was confirmed using confocal microscopy and flow cytometry of the FITC-labeled peptides, and in vivo bio-distribution of the corresponding Cy5.5-tagged peptides. Secondary structures were predicted in the setting of different polarities by circular dichroism. The results suggest that SCHP1 and SCHP2 can effectively target Sertoli cells. *In-vivo* biodistribution in mouse models showed significantly higher uptake of SCHP1 and SCHP2 by testes compared with the heart, brain, and spleen. SCHP1 and SCHP2 can be used as molecular steering for targeted male contraceptive delivery and treatment of testicular cancer and male infertility. Further developments in peptidomimetics may increase stability and information on the molecular targets of these peptides may reveal their therapeutic potential.



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