

14th GLOBAL OBESITY MEETING

October 23-24, 2017 Dubai, UAE

RFRP-3 acts as a mediator between obesity and impaired testicular function

Shabana Anjum¹, Amitabh Krishna¹ and Kazuyoshi Tsutsui²

¹Banaras Hindu University, India

²Waseda University, Japan

The aim of the present study was to evaluate the roles of RFamide related peptide-3 (RFRP-3) a novel hypothalamic neuropeptide, as an endocrine link between increasing adiposity and impaired testicular function in mice. To achieve this, the effect of RFRP-3 on changes in nutrients uptake and hormonal synthesis/action in the adipose tissue and testis was investigated simultaneously by *in vivo* study and separately by *in vitro* study. Mice were treated *in vivo* with different doses of RFRP-3 for 8 days. In the *in vitro* study, adipose tissue and testes of mice were cultured with different doses of RFRP-3 with or without insulin or LH for 24 hours at 37°C. The RFRP-3 treatment *in vivo* showed increased food intake, up-regulation of glucose transporter 4 (GLUT4) and increased uptake of triglycerides in the adipose tissue. These changes may be responsible for increased accumulation of fat into white adipose tissue, resulted in increase in the body mass. On the contrary to the adipose tissue, treatment with RFRP-3 both *in vivo* and *in vitro* showed decreased uptake of glucose by down-regulation of glucose transporter 8 (GLUT8) expressions in the testes, which in turn resulted in the decreased synthesis of testosterone. The RFRP-3 treatment *in vivo* also showed the decreased expression of insulin receptor protein in the testis which may also be responsible for the decreased testicular activity in the mice. These findings thus suggest that RFRP-3 increases the uptake of glucose and triglycerides in the adipose tissue resulting in increased accumulation of fat, whereas simultaneously in the testis RFRP-3 suppressed the GLUT8 mediated glucose uptake, which in turn may be responsible for decreased testosterone synthesis. This study thus demonstrates RFRP-3 as mediator of increasing adiposity and impaired testicular function in mice and may be used as therapeutic agent for male infertility.

Biography

Shabana Anjum has completed her PhD in 2015 from Banaras Hindu University, India. She has published 5 papers and book chapters in reputed international journals. She has presented many papers in national and international conferences.

anjum6repro@gmail.com

Notes: