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Major Professor: Dr. Sathish Kumar

Degree Objective: PhD, Endocrinology and Reproductive Physiology

Background: B.V.Sc (DVM equivalent) - Pondicherry University, India;
M.V.Sc- Sri Venkateswara Veterinary University, India

Current Research Project: Hypertensive disorders of pregnancy (HDP), including gestational hypertension and preeclampsia, are responsible for 8 to 16% of maternal mortality and morbidity in the developed countries. The surviving HDP mothers and their children are also at a higher risk for later life cardiovascular disorders. Although endothelial dysfunction is believed to be an underlying factor in the manifestations of HDP, the therapeutic options to counter HDP remain limited since the underlying mechanisms are largely unknown. Perfluorooctane sulfonic acid (PFOS) is a non-degradable per/polyfluoroalkyl environmental pollutant prevalent in most water sources in the US and detected in the blood of reproductive age women. Exposure to PFOS increases the prevalence of hypertensive disorders during pregnancy, which later leads to the onset of cardiovascular disorders in hypertensive mothers and their offspring. Recent studies have linked PFOS exposure to gestational hypertension and preeclampsia. We have recently reported that PFOS exposure during rat pregnancy leads to hypertension in their offspring. However, no studies have examined the causal mechanisms. Hence, we aim to study the mechanisms through which PFOS induces hypertension and dysregulates vascular adaptations in pregnant women and their offspring using rat and human endothelial cells as models. This will be tested in the following three aims:

Specific aim 1: Effect of PFOS on maternal cardiovascular function

Specific aim 2: Study the mechanisms by which PFOS induces fetal growth restriction

Specific aim 3: Study the mechanisms by which PFOS induces long-term cardiovascular disorders in offspring

Honors:

2009- **Best young scientist award** in Dr. S. N. Luktuke Extempore presentation during XXV annual convention of ISSAR and International symposium, India.



2009- **Michigan state university Dean Christopher Brown Award** in Dr. S. N. Luktuke Extempore presentation during XXV annual convention of ISSAR and International symposium, India.

2011- **Best presentation award** during XXVII annual convention of ISSAR and national symposium, India.

Grants Received:

Publications:

Dangudubiyam SV, Mishra JS, Zhao H, Kumar S. Perfluorooctane sulfonic acid (PFOS) exposure during pregnancy increases blood pressure and impairs vascular relaxation mechanisms in the adult offspring. *Reproductive Toxicology*, 2020 (doi: 10.1016/j.reprotox.2020.09.008)

Dangudubiyam SV, Ginther OJ. Relationship between more follicles in right than left ovary in recently born calves and right ovary propensity for ovulation in cattle. *Reproductive Biology* 2019; 19(4): 363-367.

Ginther OJ, **Dangudubiyam SV**. Factors affecting the side of ovulation in heifers and mares: A comparative study. *Animal Reproduction Science* 2018; 19: 72-78.

Ginther OJ, **Dangudubiyam SV**, Domnigues RR. Follicle blood flow and FSH concentration associated with variations in characteristics of follicle selection in heifers. *Theriogenology* 2019; 125:93-101.

Ginther OJ, Domnigues RR, **Dangudubiyam SV**, Araujo ER. Concentrations of follicle stimulating hormone associated with follicle selection, number of follicles, and ipsilateral vs contralateral relationships in mares. *Theriogenology* 2018; 113:159–165.

Sri Vidya D, Praveen Charkravathy V, Kona SSR, Siva kumar AVN, Brahmaiah KV, Rao VH. Expression of kit ligand and insulin-like growth factor binding protein 3 during in vivo or in vitro development of ovarian follicles in sheep. *Reproduction in Domestic animals* 2017; 1–11.

Sivasagar k, Rao VH, Praveen Charkravathy V, Sivakumar AVN, **Sri Vidya D**, Padmaja K. Quantitative expression patterns of GDF9 and BMP15 genes in sheep ovarian follicles grown in invivo or cultured invitro. *Theriogenology* 2016; 85:316–22.



National Presentations:

Other Presentations:

Oral Presentation at XXV annual convention of ISSAR and International symposium on expanding the horizons of reproductive technologies for augmenting fertility in farm and pet animal in global scenario, Namakal, India, 2009

Oral Presentation at XXVII annual convention of ISSAR and national symposium on reproductive biotechnologies for augmenting fertility and conservation of animal species with special reference to northeastern hill region, Aizwal, India, 2011

Teaching and Mentorship:

ERP Service:

Member of the Student Committee: 2019-present