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Monash Biomedicine Discovery Institute
Neuroscience Program

OTHER PROGRAM AFFILIATIONS



Development and
Stem Cells



Metabolic Disease
and Obesity

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Work in our laboratory has contributed extensively to the field of reproductive neuroendocrinology for over 30 years. We expanded to embrace all many other aspects of neuroendocrinology and currently have two main divisions: reproduction and metabolic neuroendocrinology.

We utilise sheep models, which allow a range of studies not easily undertaken in small laboratory species. We have developed a number of novel neuroendocrine methodologies that allow analysis ranging from the whole animal down to the single cell and subcellular function. These techniques have enabled a range of national and international collaborations, with grant funding from Australian and offshore sources. In addition, our laboratory undertakes a range of contract research projects.

Research Projects

Research in the Neuroendocrinology Lab currently focuses on the following areas:

1. **Central regulation of reproduction by kisspeptin and gonadotropin inhibitory hormone**
2. **Estrogen signalling in neuroendocrine systems**
3. **Control of food intake and energy expenditure by leptin and novel regulatory factors**
4. **Melanocortins and reproduction**
5. **Central regulation of energy expenditure**

Selected significant publications:

1. Ezzat A, Pereira A, **Clarke IJ**. 2015. Kisspeptin is a component of the pulse generator for GnRH secretion in female sheep but not the pulse generator. *Endocrinology* 156(5):1828-37
2. Jacobi JS, Coleman HA, Enriori PJ, Parkington HC, Li Q, Pereira A, Cowley MA, **Clarke IJ**. 2013. Paradoxical effect of gonadotrophin-inhibiting hormone to negatively regulate neuropeptide Y neurones in mouse arcuate nucleus. *J. Neuroendocrinol.* 25(12):1308-17
3. Smith JT, Young IR, Veldhuis JD, **Clarke IJ**. 2012. Gonadotropin-inhibitory hormone (GnIH) secretion into the ovine hypophyseal portal system. *Endocrinology* 153(7):3368-75
4. Henry BA, Andrews Z, Rao A, **Clarke IJ**. 2011. Central leptin activates mitochondrial function and increases heat production in skeletal muscle. *Endocrinology* 152: 2609-2618
5. Lincoln GA, **Clarke IJ**, Hut RA, Hazlerigg DG. 2006. Characterizing a mammalian circannual pacemaker. *Science* 314(5807): 1941-4