Peripheral hormones regulate metabolism and reproduction by an action at specific brain sites where the blood-brain-barrier (BBB) is weakened due to the presence of highly permeable capillary vessels. We have recently identified such permeable microvessels in the hypothalamus and now wish to study their cellular surroundings to better understand how hormones gain an access to brain tissue and which target-neurons they do actually reach. We will essentially use morphological approaches in rats and mice either normal or after pharmacological treatment expected to alter the interactions between the partners of this weakened hypothalamic BBB (endothelium, glia and neurons).

OBJECTIVES :
We will ask the following questions : (1) which glial phenotype (astrocyte, tanycyte) enwrap permeable microvessels ? (2) which neural elements are contiguous to these vessels (axons, dendrites, perikarya) and (3) of what phenotype are they (neurotransmitter, neuropeptide) ; (4) do interfering with these neurotransmissions impact hypothalamic permeability ; (5) is hypothalamic permeability altered in chronic metabolic disease models ?

METHODS :
Microsurgery, stereotaxy, histology, microscopy-imaging

Qualification required

Previous laboratory research experience (microsurgery, histology, imaging) prefered but not mandatory.