Human corpus cavernosum advantages:

- In vitro investigation of human corpus cavernosum function.
- Useful to investigate the effect of drugs developed to improve erectile dysfunction.
- Evaluation of the ability of drugs at modulating cavernosal smooth muscle tone can be performed:
  - on adrenergic contractile response elicited by α-adrenergic pharmacological stimulation (phenylephrine/norepinephrine)
  - on contractions induced by electrical field stimulation (EFS) which stimulates efferent nerve terminals present in the tissue
  - on nitricergic relaxation induced by EFS or pharmacological agents (nitric oxide donors);
  - endothelium-dependent or independent relaxation can be assessed
  - on KCI response
  - on others relevant physiological precontracted states (endothelin-1, oxytocin…)
- Evaluation of mRNA by RT-PCR or protein expression, by immunohistochemistry (IHC) or western-blot (WB), in parallel of organ bath studies.
- Useful to investigate the effect of drugs known to act on erectile smooth muscle or on adrenergic, cholinergic or non-adrenergic non-cholinergic pre-synaptic neuro-transmission.

Source of human tissues sample:

- Human corpus cavernosum samples are obtained from patients undergoing penile surgery for penile implant as treatment of erectile dysfunction, penile congenital curvature or for Peyronie’s disease.

Endpoints:

- Evaluation of the capacity of a drug to inhibit human corpus cavernosum smooth muscle contractions.
- Determination of potency (EC$_{50}$) and efficiency (Emax) of a drug.
- Determination of the affinity (pA$_{2}$) of a drug for a human corpus cavernosum receptor.

Related Pelvipharm bibliography:


Links to applicable experimental skills:

- **Organ bath studies**
  - **EFS / Pharmacological studies**
  - **Human tissues**
  - **Biochemistry (Plasma / Urine / Tissue)**
    * Spectrophotometric assays
    * Protein expression and activity

- **Histology**
  * Histomorphology
  * Histomorphometry
  * Oxidative fluorescence

- **Immunohistology / Confocal microscopy**
  * Protein expression – immunohistochemistry / immunofluorescence
  * Confocal microscopy