Streptozotocin-induced diabetic rats/mice (STZ)

Model advantages:
The rat / mouse model of diabetes mellitus induced by streptozotocin injections is one of the most widely used model of type I diabetes and mimics human pathological situation of decreased insulin production (untreated type I diabetes) or decrease tissue responsiveness to insulin.

Pathophysiological features:

Metabolic features:
- weight loss
- hyperglycemia
- Streptozotocin–induced pancreatic beta cells (insulin-producing cells) destruction
- Autonomic neuropathy

Cardiovascular features:
- Vascular endothelial dysfunction (aorta) (figure 1)
- Acceleration of atherosclerosis progression in ApoE knockout mice

Erectile function features:
- Impairement of endothelial and neurogenic relaxations of corpora cavernosa (figure 2)
- Penile autonomic neuropathy

Summarized methodology:
In rats or mice, streptozotocin intra-peritoneal injection(s) induces diabetes which is confirmed by determining blood glucose levels

Related Pelvipharm bibliography:
Non disclosable information for confidentiality reasons

Links to applicable experimental skills:
- Administration routes / regimen
- Plasma / urine / tissue collection
- In vivo experiments – conscious animals
  * Telemetry
  * Urine collection - Metabolic cages
  * Tail cuff
- Organ bath studies (EFS / Pharmacological studies)
  * Animal tissues
- Biochemistry (Plasma / Urine / Tissue)
  * Spectrophotometric assays
  * Protein expression and activity
- Histology
  * Histomorphology
  * Oxidative fluorescence
- Immunohistology / Confocal microscopy
  * Protein expression – immunohistochemistry / immunofluorescence
  * Confocal microscopy