Chronic prostate hyperplasia and inflammation induced by sulpiride

A MODEL FOR BENIGN PROSTATIC HYPERPLASIA (BPH) AND PROSTATITIS

Model

Benign prostatic hyperplasia (BPH) and prostatitis are associated. Moreover, chronic inflammation of the prostate has emerged as a major contributor to development and pathogenesis of BPH.
Prostate hyperplasia and inflammation are induced by sulpiride chronic administration.

Specie

Rat

Interest

- This chronic model is characterized by prostate weight increase (at the lateral lobe level), stromal and glandular leukocytes infiltration, upregulation of inflammatory biomarkers such as cytokines and chemokines as well as stromal and glandular prostate cells proliferation and hyperplasia.
- Sulpiride effects occurred exclusively in the lateral lobe of the prostate which is considered to be homologous to the transitional zone that is more prone to develop BPH in human.
- As in human BPH, no prostate cells hypertrophy occurs in this model.
- This model is validated by clinically relevant compounds: finasteride (5α-reductase inhibitor) and Permixon® (plant extract).

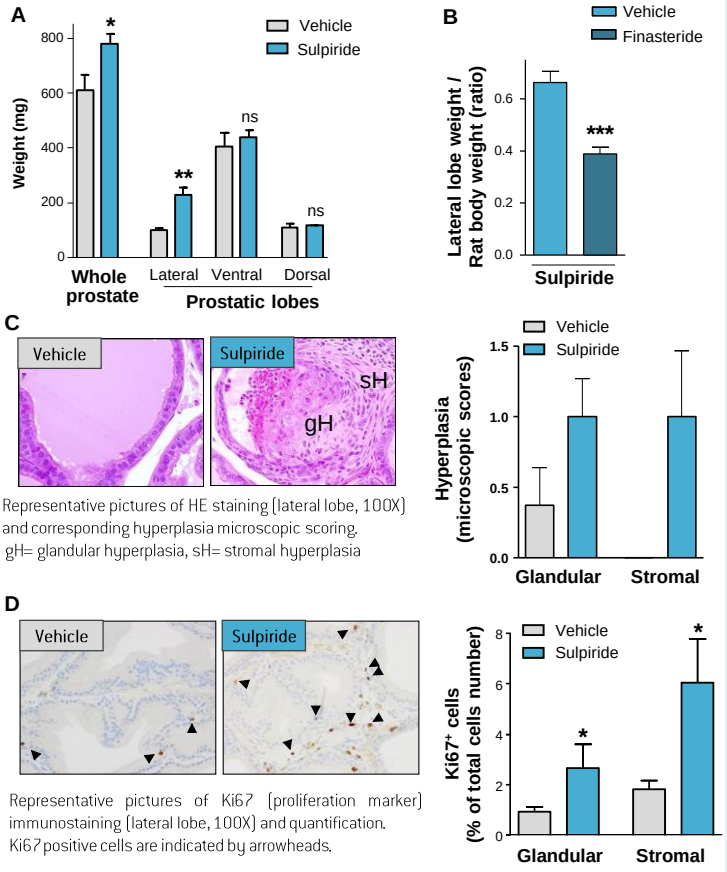
Model Description

- Sulpiride (40 mg/kg) or its vehicle is injected intraperitoneally daily, during a month.
- Prostate is collected and each lobe separated, weighed and processed for histological analysis.
- Tested compounds can be administered *via* various routes (i.v., i.p., s.c., p.o.).

Evaluated Parameters

- Whole prostate and prostatic lobes weight (mg).
- Histological parameters: Hematoxylin-Eosin (HE) (leucocytes infiltration), KI67 (proliferation) staining... Proliferation is quantified using ImageJ software.
- Myeloperoxydase (MPO) activity quantification.
- Biomarkers can also be evaluated upon request (Multiplex technology or ELISA assays).

Sulpiride induces prostate lateral lobe-specific chronic hyperplasia



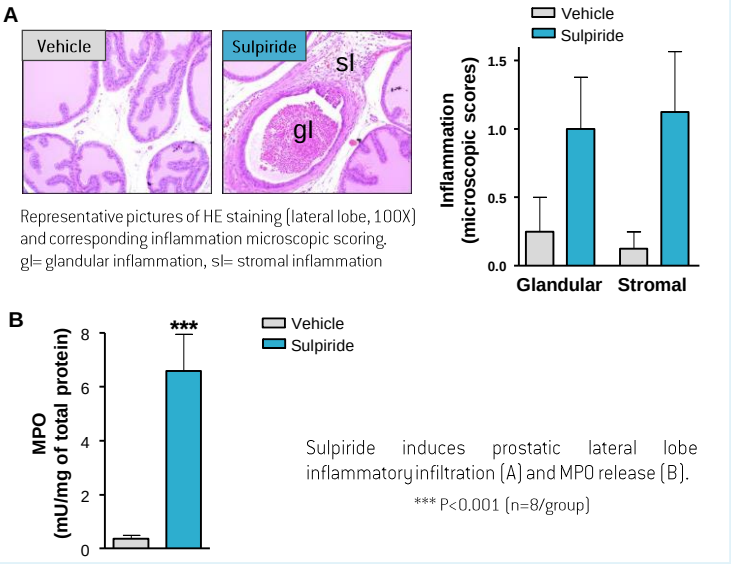
Representative pictures of HE staining (lateral lobe, 100X) and corresponding hyperplasia microscopic scoring.
gH= glandular hyperplasia, sH= stromal hyperplasia

Representative pictures of Ki67 (proliferation marker) immunostaining (lateral lobe, 100X) and quantification.
Ki67 positive cells are indicated by arrowheads.

Effects of sulpiride on whole prostate and prostatic lobes weight (A). Finasteride (5 mg/kg, p.o.) reduces sulpiride-induced prostatic lateral lobe weight increase (B). Sulpiride induces lateral lobe hyperplasia (C) and proliferation (D).

ns P>0.05, * P<0.01, ** P<0.01, *** P<0.001, (n=8-10/group)

Sulpiride induces prostate lateral lobe chronic inflammation



Representative pictures of HE staining (lateral lobe, 100X) and corresponding inflammation microscopic scoring.
gl= glandular inflammation, sl= stromal inflammation

Sulpiride induces prostatic lateral lobe inflammatory infiltration (A) and MPO release (B).

*** P<0.001 (n=8/group)