TheUni-NephrectomizedSDTFattyRat,anovelType2diabeticmodelofDiabeticNephropathy,developsfeaturesofdiabeticretinopathyover10weeks

**PUPRESE:**

Animal modelsof spontaneous diabetes are still needed to mimic human diabetic retinopathy. We recently developed a novel model of diabetic nephropathy using the uni-nephrectomized Spontaneously Diabetic Torii (SDT) fatty rat. Fed a salt rich diet, this hypertensive/obese/type 2 diabetic rat develops advanced renal glomerulosclerosis, inflammation and fibrosis, and a >50% glomerular filtration rate decline within 10 weeks. Here we investigated whether this rat model would also develop features of diabetic retinopathy.

**METHODS:**

Two groups of 6-week old, male, Sprague Dawley (SD, control) rats and SDT fatty rats (n=10 per group) underwent unilateral nephrectomy. After a 1-week recovery period, rats were fed for 10 weeks a chow diet with 0.3% salt in drinking water (i.e. from 7 weeks to 17 weeks of age). Diabetic retinopathy was evaluated in terms of i) retinal function by electroretinogram and oscillatory potentials, ii) integrity of blood-retinal barrier by albumin-Evans blue complex leakage, iii) microscopy histopathologic studies by glial fibrillary acidic protein IHC.

**RESULTS:**

SDT fatty rats under 0.3% salt exhibit obese and diabetic phenotype after unilateral nephrectomy

Body weight and fed blood glucose in Sprague Dawley (SD) control and SDT fatty rat at one week after unilateral nephrectomy. ***p<0.001 vs. Unx SD control.

Evans blue retinal flat-mount indicates vessel dilatation and tortuosity, without evidence of retinal vascular permeability, in 17-week old Unx SDT fatty rats

• Uni-nephrectomized SDT fatty rats develop features of diabetic retinopathy in parallel with diabetic nephropathy.
• Our original data set suggests that this rat model is suitable to evaluate the effects of drugs on these type 2 diabetes co-morbidities.

DISCLOSURES: FL, SLB, and S5 are employees of Physiogenex, S.A., VIMC, Inc. FL is an employee of Iris Pharma, and S6 is an employee of CLEA Japan Inc. SD is an employee of Japan Tobacco Inc.