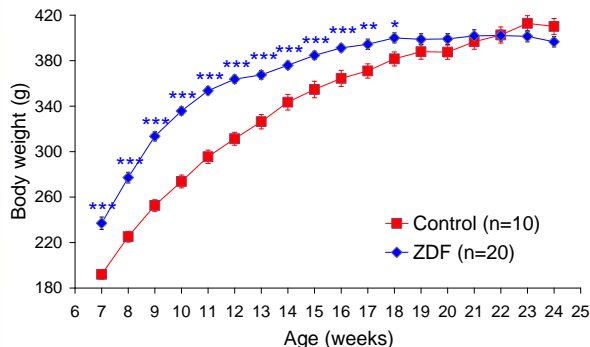


# RenaSci: ZDF Rat Model of Type 2 Diabetes



- Zucker diabetic fatty (ZDF-*Lepr<sup>fa</sup>/CrI*) rats possess an inherited mutation of the *fa/fa* gene and are widely used as an animal model of type 2 diabetes
- RenaSci have characterised (in collaboration with Charles River) a new colony of ZDF rats
- Male ZDF rats with the genotype *fa/fa* (ZDF) or *+/+* or *+/fa* (Control) were obtained from Charles River, France at 6 weeks of age and maintained on Purina 5008 diet
- The following parameters were assessed :-
  - Body weight, food and water intake
  - Glycaemic control
  - Renal function
- ZDF rats developed severe diabetes with impaired kidney function compared to the controls confirming that these animals can be used to model type 2 diabetes and associated renal damage

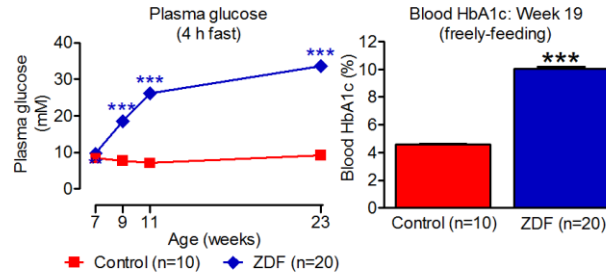
## Increased Body Weight until 19 Weeks of Age



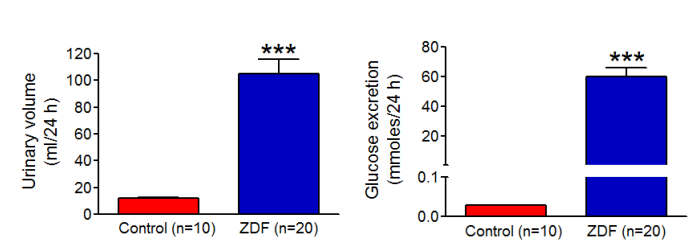
Food and water intake also increased cf controls (not shown).

## ZDF Rats Develop Severe Diabetes with Impaired Renal Function

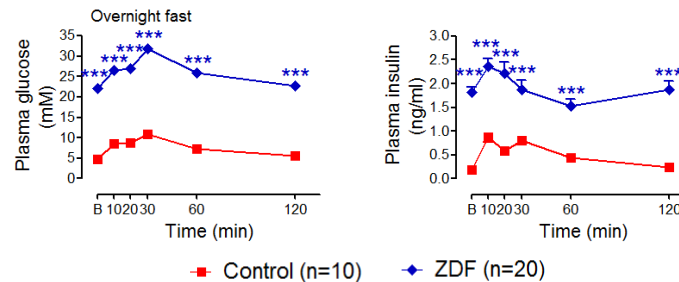
### Marked Increase in Plasma Glucose with Age and Increased HbA1c Illustrates Development of Diabetes



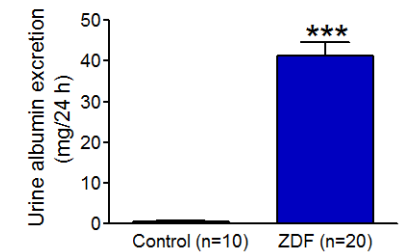
### Increased Urinary Volume and Urinary Glucose Excretion at 16 Weeks is Consistent with Diabetes



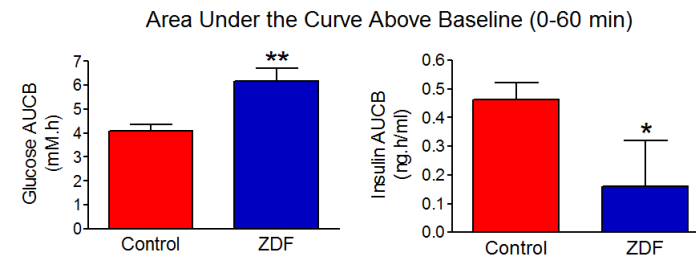
### OGTT at 12 Weeks Shows Increased Plasma Glucose and Insulin at Baseline (B) and Post-Glucose (2 g/kg po)



### Albuminuria (16 Weeks) Indicates Diabetes-induced Renal Damage

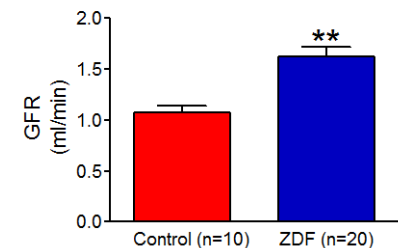


### OGTT AUCB (0-60 min) Data Demonstrates Impaired Glucose Tolerance and Insulin Secretion (Pancreatic Failure)



### Hyperfiltration (20 Weeks): Precursor Marker of Progressive Diabetic Nephropathy

#### Glomerular Filtration Rate (GFR)



GFR was measured by the FITC inulin clearance test.

In all figures \* $p < 0.05$ , \*\* $p < 0.01$  and \*\*\* $p < 0.001$  versus control.

For more information contact:

e: [inform@renasci.co.uk](mailto:inform@renasci.co.uk)

t: +44 (0) 115 912 4260

[www.renasci.co.uk](http://www.renasci.co.uk)