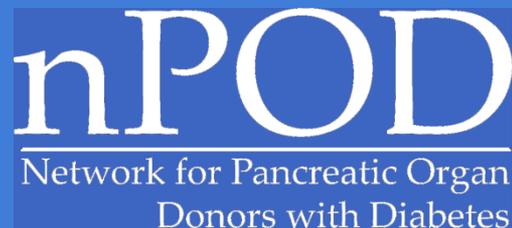


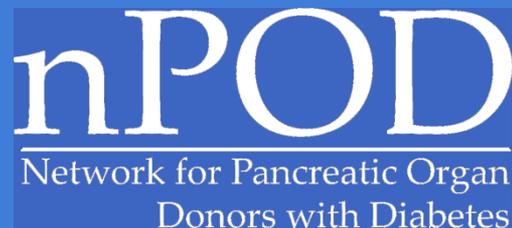
Detection of enteroviral proteins and cellular antiviral responses in the islets of type 1 diabetes patients: A comparative analysis of two cohorts

Sarah J. Richardson, Shalinee Dhayal, Adrian J. Bone,
Alan K. Foulis and Noel G. Morgan



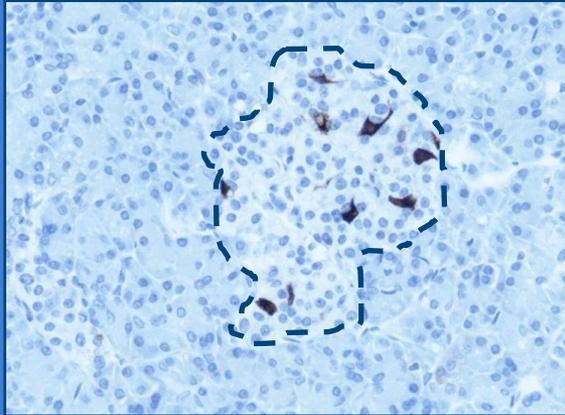
The Cohorts

	UK Cohort	nPOD cohort
Number of cases	72	6
Mean Age	12.65±1.1y	16.9±2.1y
Age Range	1-42y	12-23y
Mean Time Since Diagnosis	8.2±4.1mths	4.7±1.3y
Range Time Since Diagnosis	0-6y	1-8y
Geography	Scotland, England and Wales	USA
Sample Collection	1959-1983	2007 onwards
	Autopsy and organ donors	Organ donors
Sample Processing	Variable fixation types and times	Strictly controlled and uniform

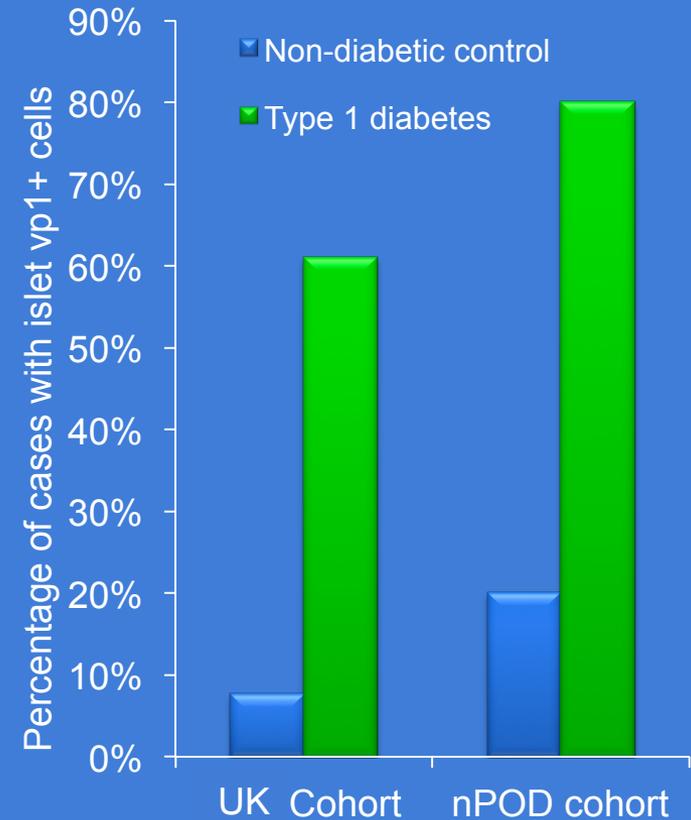
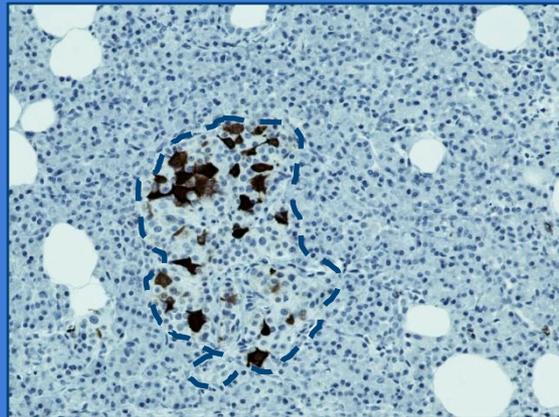
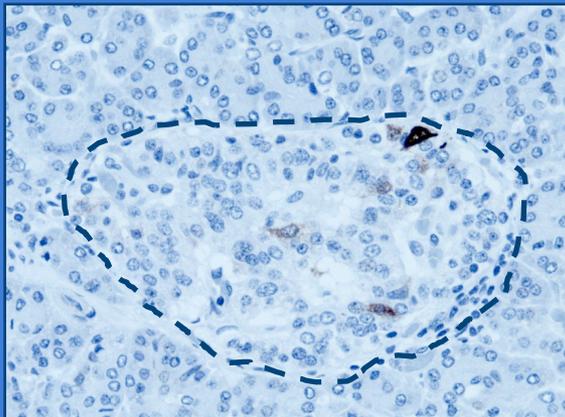
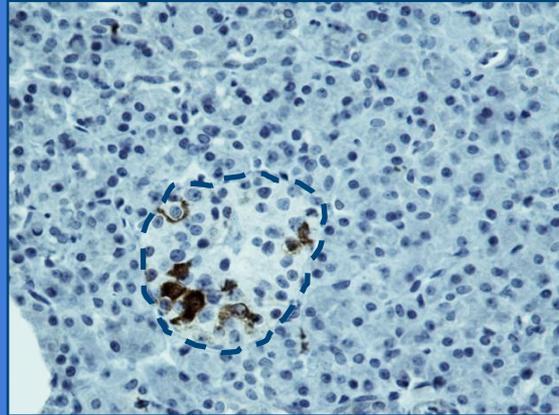


Enteroviral vp1 (5D8/1) is expressed in the islets of recent-onset type 1 diabetes patients from both cohorts

UK Cohort



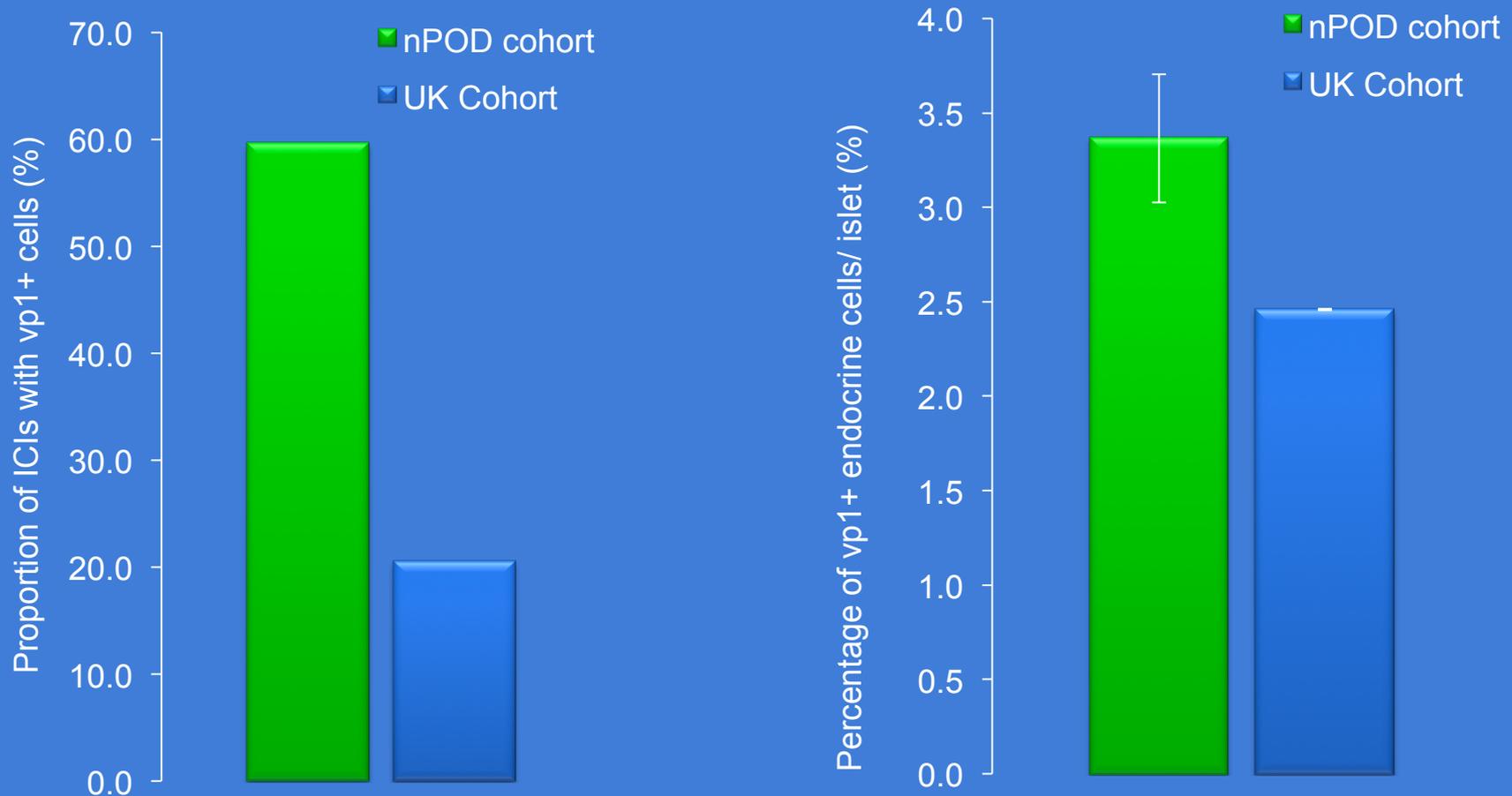
nPOD Cohort



nPOD
Network for Pancreatic Organ
Donors with Diabetes



Both the number of vp1+ containing islets and the number of vp1+ cells within these islets are increased in the nPOD cohort

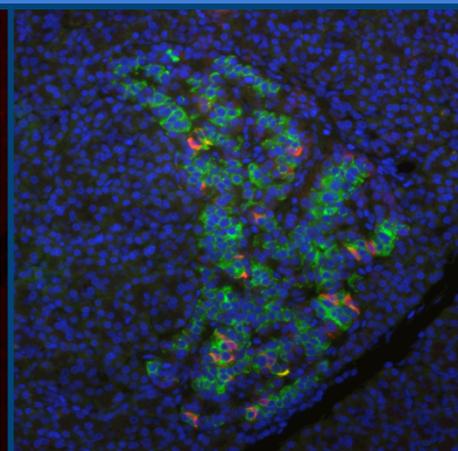
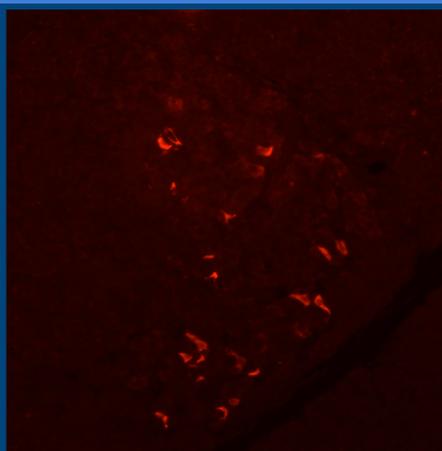
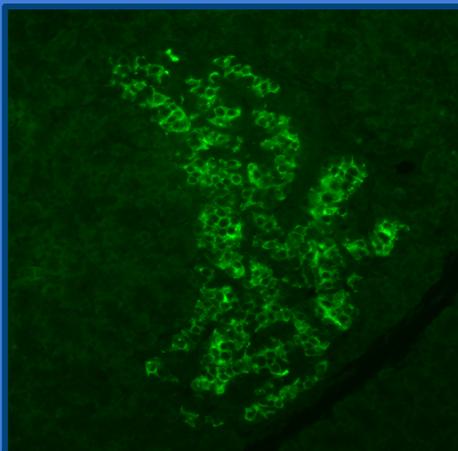


nPOD
Network for Pancreatic Organ
Donors with Diabetes

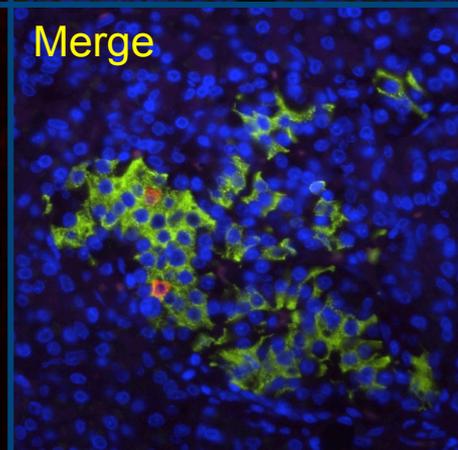
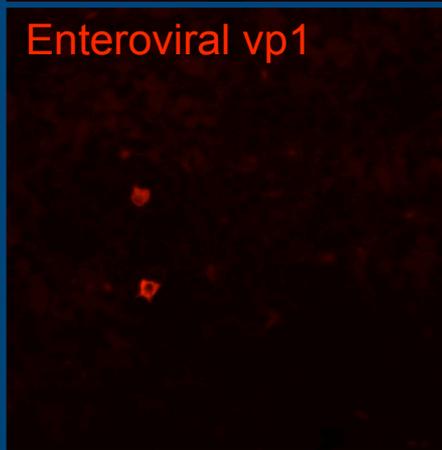


Enteroviral vp1 expression co-localises with insulin in both cohorts

nPOD Cohort



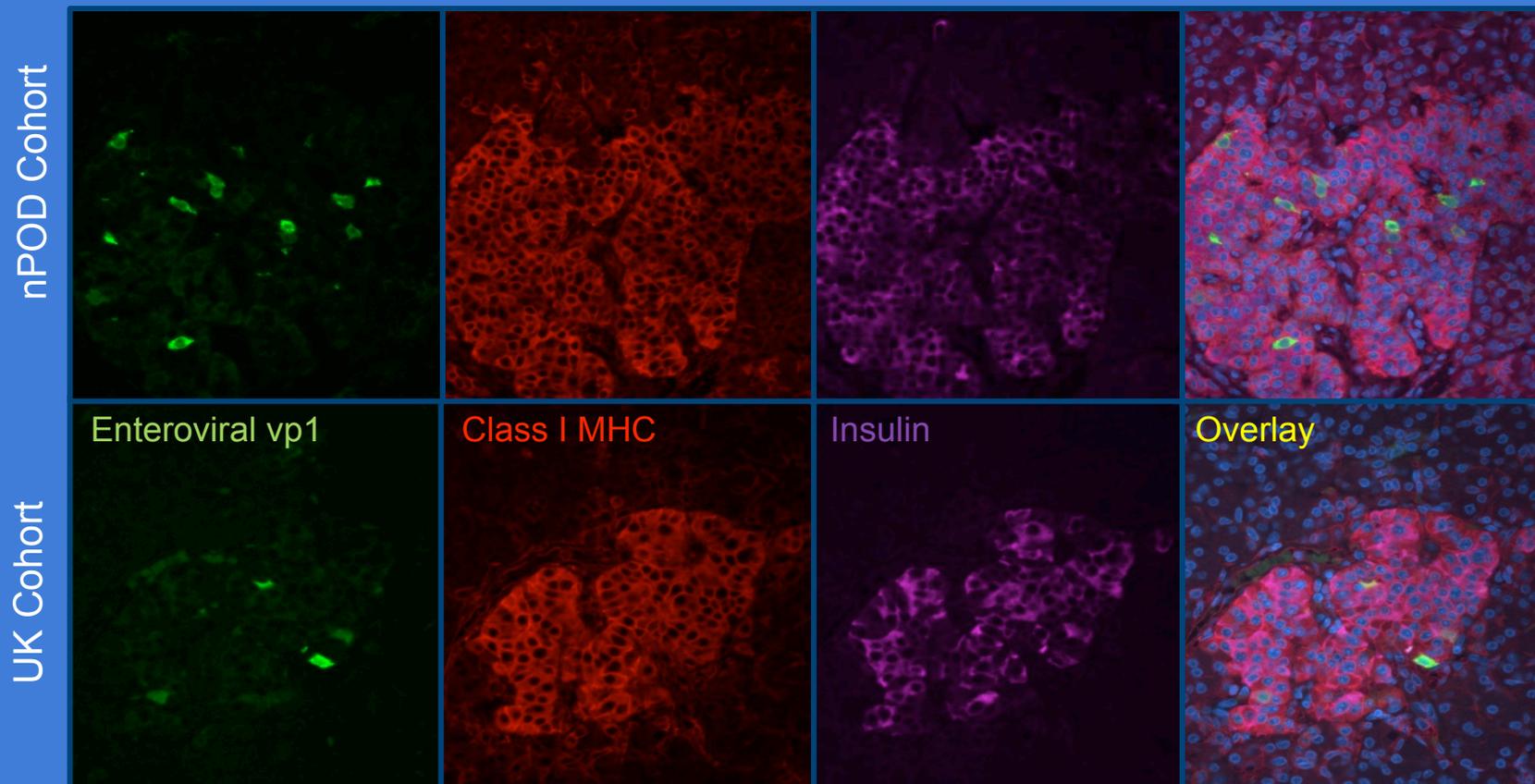
UK Cohort



nPOD
Network for Pancreatic Organ
Donors with Diabetes



Hyper-expression of Class I MHC is observed in ICIs from both cohorts

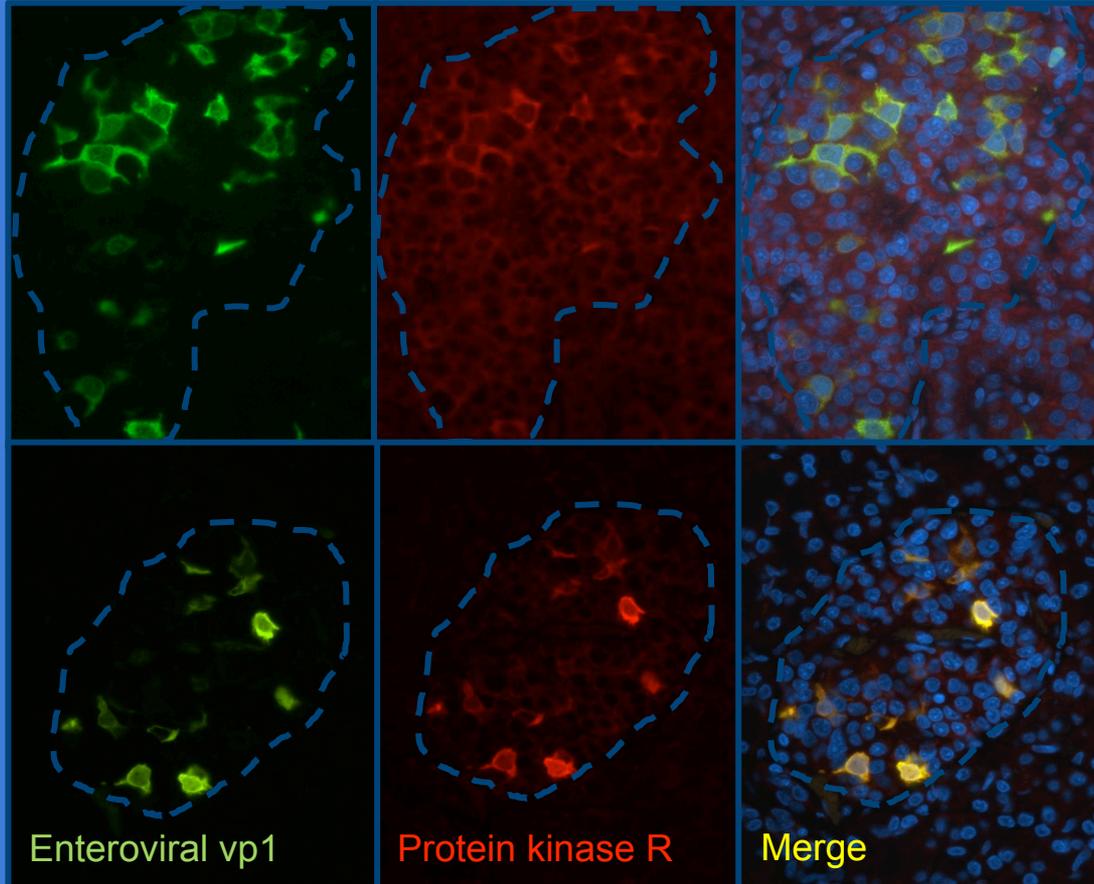


nPOD
Network for Pancreatic Organ
Donors with Diabetes



Enteroviral vp1 co-localises with Protein Kinase R (PKR) in both cohorts

nPOD Cohort



nPOD

UK

3 cases

7 cases

52 ICIs
31 vp1+

374 ICIs
77 vp1+

All vp1+
cells within
these ICIs
co-express
PKR

All vp1+
cells within
these ICIs
co-express
PKR

Enteroviral vp1

Protein kinase R

Merge



nPOD
Network for Pancreatic Organ
Donors with Diabetes



Conclusions

- Enteroviral vp1 expression is observed at high frequency in the ICIs of type 1 diabetes cases in both the nPOD collection and in a separate (older) UK cohort
- Both the number of vp1+ islets and the number of vp1+ endocrine cells within these islets are increased in the nPOD cohort when compared to the UK cohort
- In both cohorts vp1 expression is correlated with the increased expression of the pathogen recognition receptor, PKR and with hyper-expression of Class I MHC

