

# The break out sessions



Pen Holland, Jillian Barlow and Emma Rand



Pen Holland

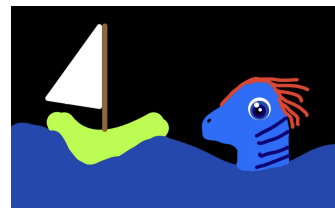
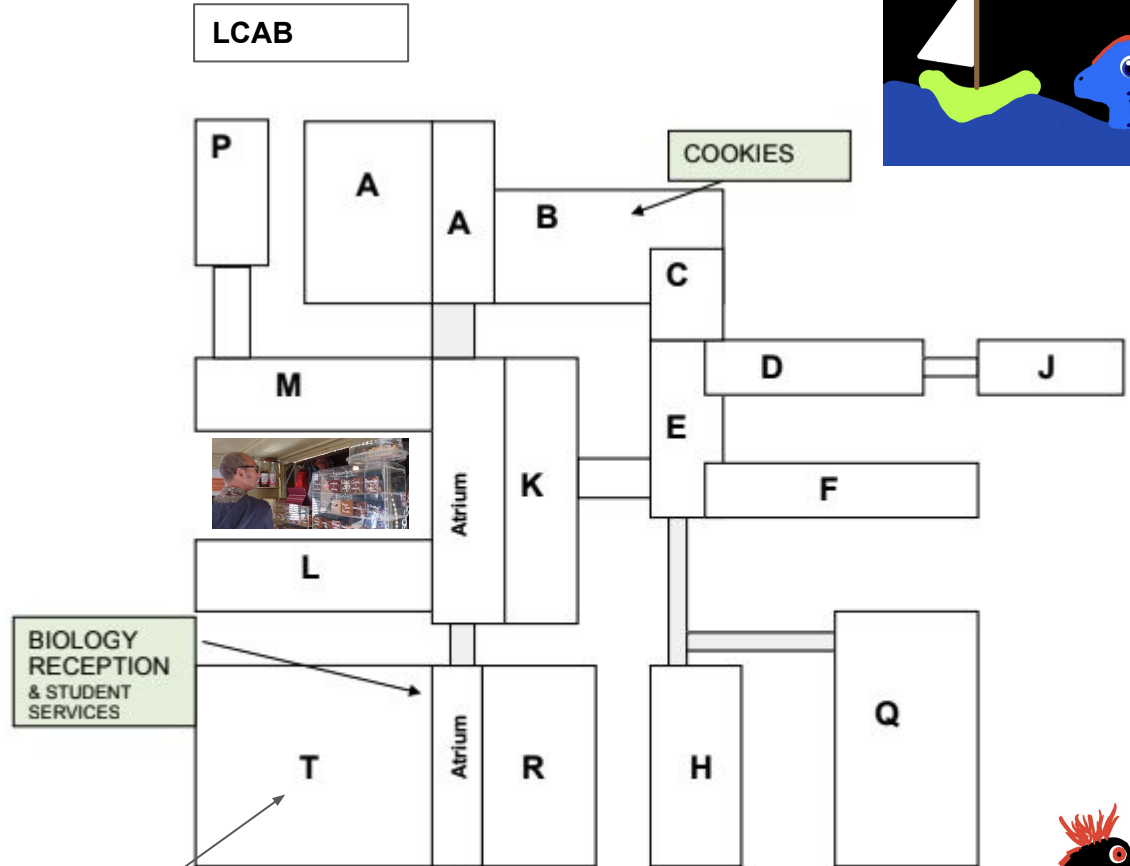
# Why are we here?

We're a large department, with broad interests.

We have a lot of experience and expertise between us, but we don't always know where it is.

We'd like to think about how we work together now, and how we want to work together in future.

We are here

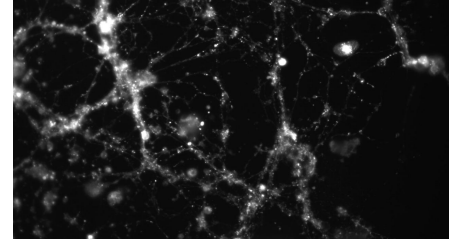


# Session themes

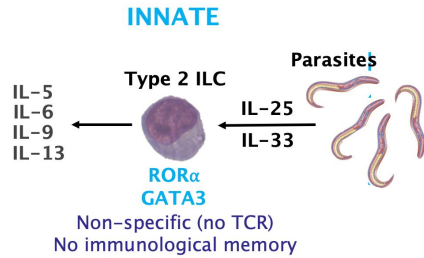
A. How can all staff work together to improve the UG/PGT **student research experience and outcomes**? (e.g. co-supervision, sharing labs/data, bringing research fellows & T&S together)

B. How can all staff work together to improve **professional training programmes**? (e.g. PGR students, DTPs, mentoring, skills development for staff)

C. Strategically, how do we create **more (better) interactions between staff groups**? (e.g. bringing research staff, T&S/ART academics, technicians and PGR together to achieve whatever it is that people want to do)



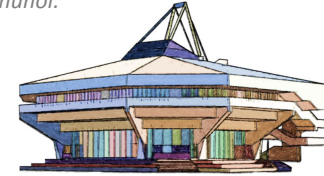
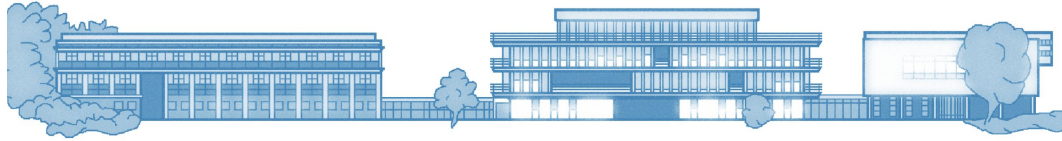
# Integrating at York as a teaching and scholarship academic



## How is type 2 immunity initiated and how does this drive immune responses in allergic asthma and infection?

Barlow JL et al (2011) CEA  
Barlow JL et al (2012) JACI  
Walker JA; Barlow JL (2013) Nature Reviews  
Barlow JL et al (2013) JACI  
Barlow JL et al (2013) J Exp. Med.

Hardman CS et al (2017) Science Immunol  
Kerscher B et al (2019) Front. Immunol  
Walker JA et al (2019) Immunity  
Panova V et al (2021) Mucosal Immunol.  
Ferreira ACF. et al (2021) Nature Immunol.  
Hardman CS. Et al (2021) Science Immunol.

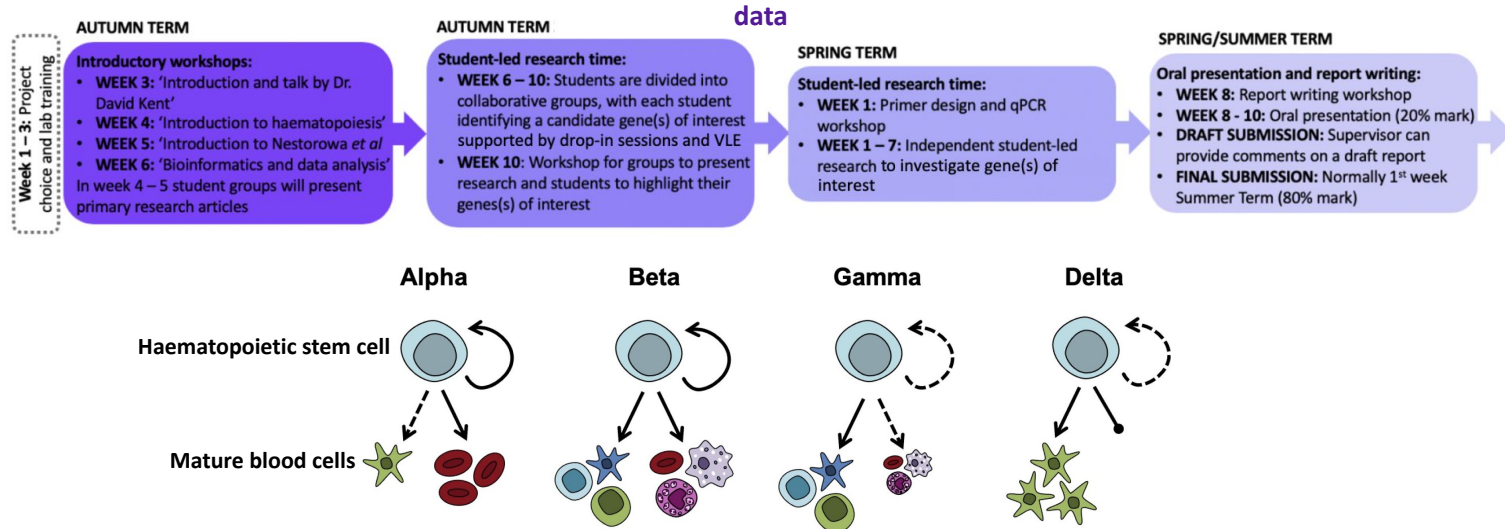


- **Research-orientated teaching:** 2<sup>nd</sup> Bioscience Techniques (immunobiology), 3<sup>rd</sup> and 4<sup>th</sup> year IM research projects
- **Novel research on iNKT cell biology (Cull A. et al in preparation)**
- **Summer studentship programme:** Attracting external (Zeiss, STEMCELLTechnologies, Jacobs, BBSRC) and internal funding (Biology, HYMS, York Unlimited) to fund 10 week research placements
- **New research collaborations:** Co-supervisor to Masters by Research student with Dr. Dave Boucher to explore the inflammasome in lymphoid cells
- **Grant writing:** Co-investigator and collaborator across Wellcome (McKenzie, Cambridge, Ian Hitchcock), MRC (David Kent, James Hewitson) grants, and edited and advised on many others for early career fellows

# Integrated Masters (IM) degree programs in the Biology Department

- 2<sup>nd</sup> year undergraduate York Biology students are allowed to progress into our IM program with a transcript average of 55%. Each year we take 90 – 120 students.
- 3<sup>rd</sup> year IM students undertake a group research project, in order to better understand the research process, prior to an independent 4<sup>th</sup> year research project.

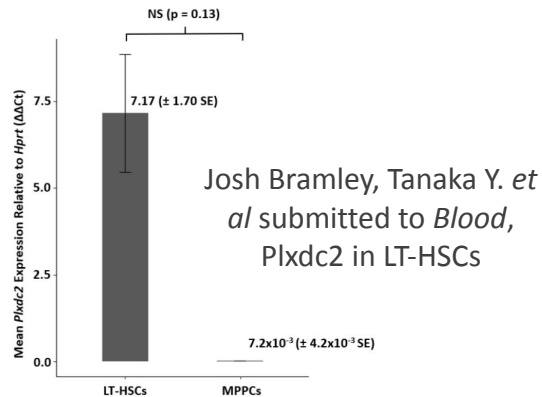
## BIO00082H Group IM Project: Investigating the differentiation of stem cells in healthy bone marrow using RNA Sequencing data



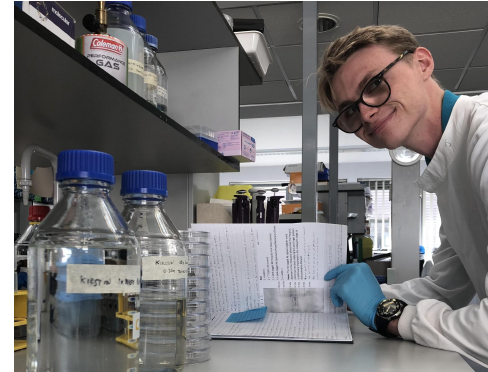


# Identification of novel cell surface markers on stem cells

- 1,654 cell dataset, analyse as three different cell types (LT-HSC, HSPC , and Prog).
- Dataset is filtered to focus on surfaceome genes. Collaborate in your group to identify genes that are differentially expressed using RStudio.
- Individually, identify 1 – 2 candidate genes of interest, whose expression can be validated using qPCR.



**Figure 5: *Plxdc2* Is Not Significantly Upregulated In LT-HSCs Relative to MPPCs.** *Plxdc2* expression was quantified relative to the expression of the *Hprt* housekeeping gene in LT-HSCs and MPPCs and data is presented as mean  $\Delta\Delta C_t \pm$  Standard Error. Despite the data showing *Plxdc2* to be 995-fold upregulated in LT-HSCs relative to MPPCs, statistical analysis revealed this fold induction to be insignificant (**Mann-Whitney:  $W = 8$ ,  $n_{LT-HSC} = 2$ ,  $n_{MPPC} = 4$ ,  $p = 0.13$** ).



- Applied to the Summer studentship programme and was 1<sup>st</sup> reserve for an industry-funded technical role
- Following the recruitment process appointed to a 6-month RA role (Walrad Lab, MYND RNA binding protein)
- Will apply to PhD positions 2022

## Theme B: professional training programmes





# Research + Teach = Reach?

Emma Teaching  
Data Analysis &  
reproducibility

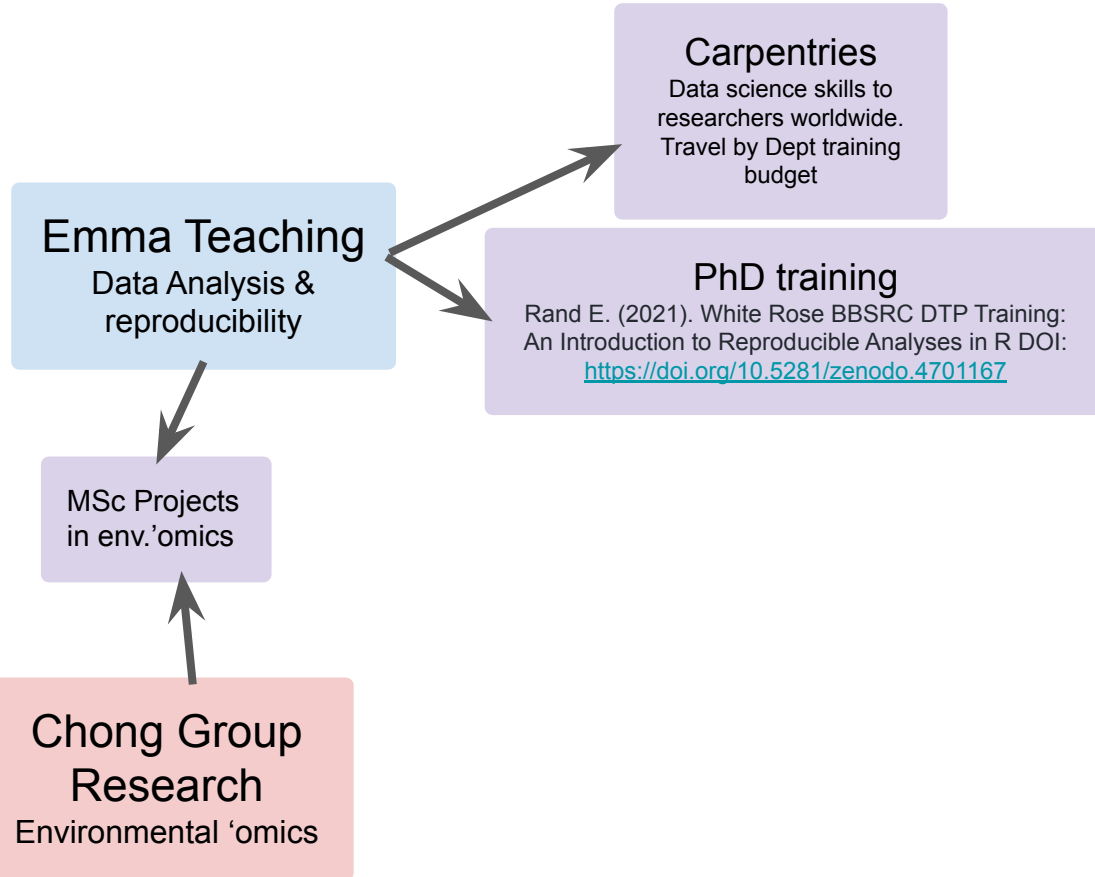


MSc Projects  
in env.'omics

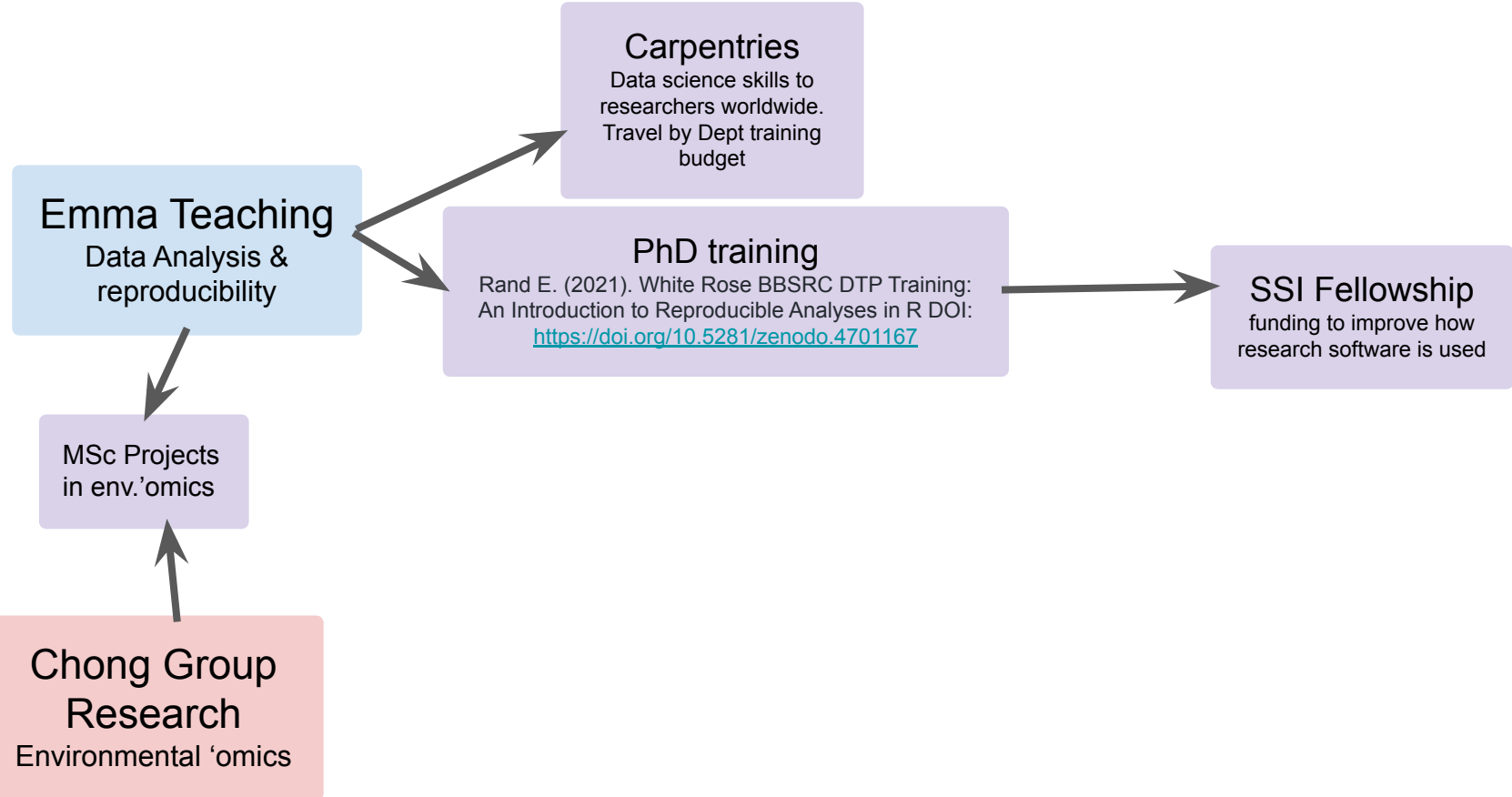


Chong Group  
Research  
Environmental 'omics

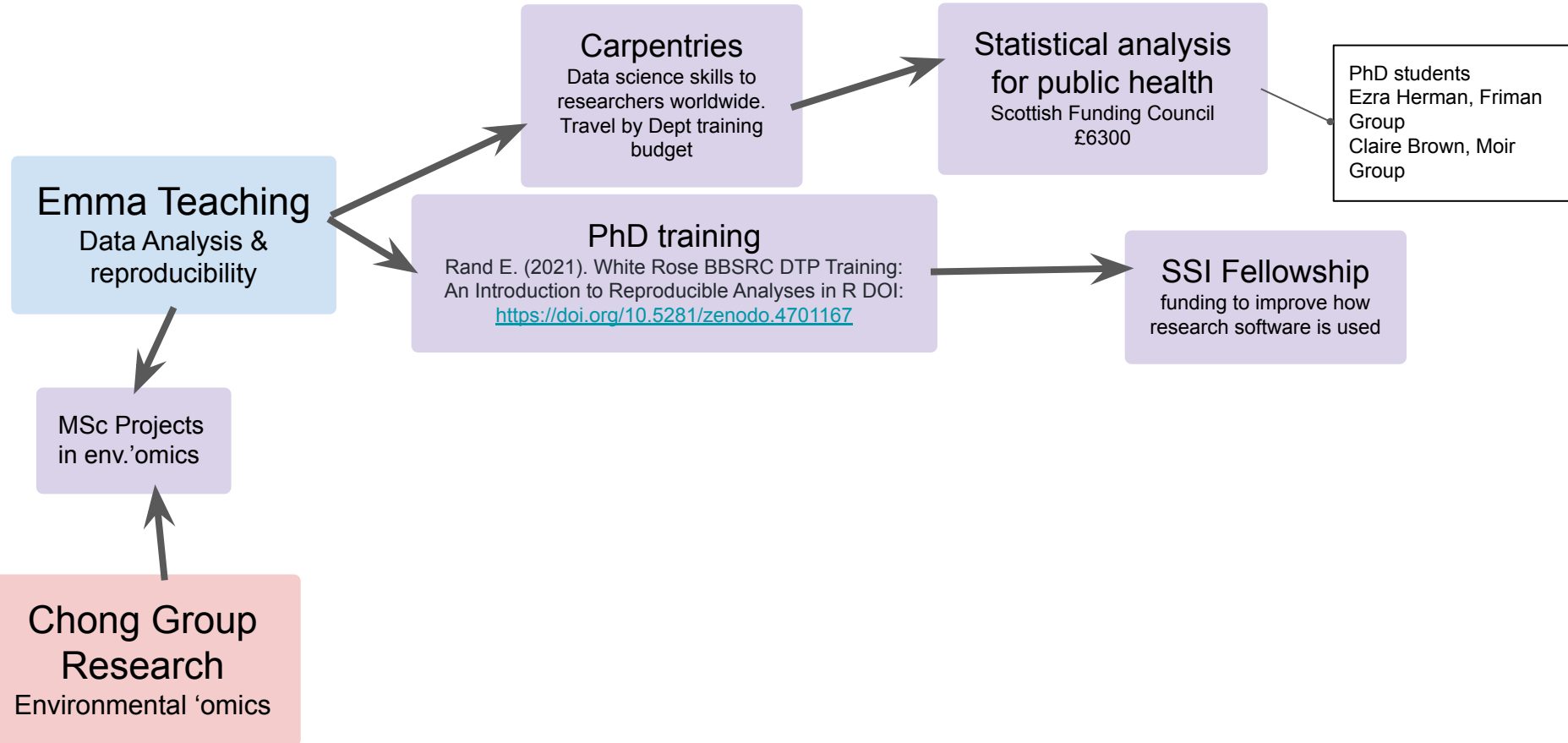
# Research + Teach = Reach?



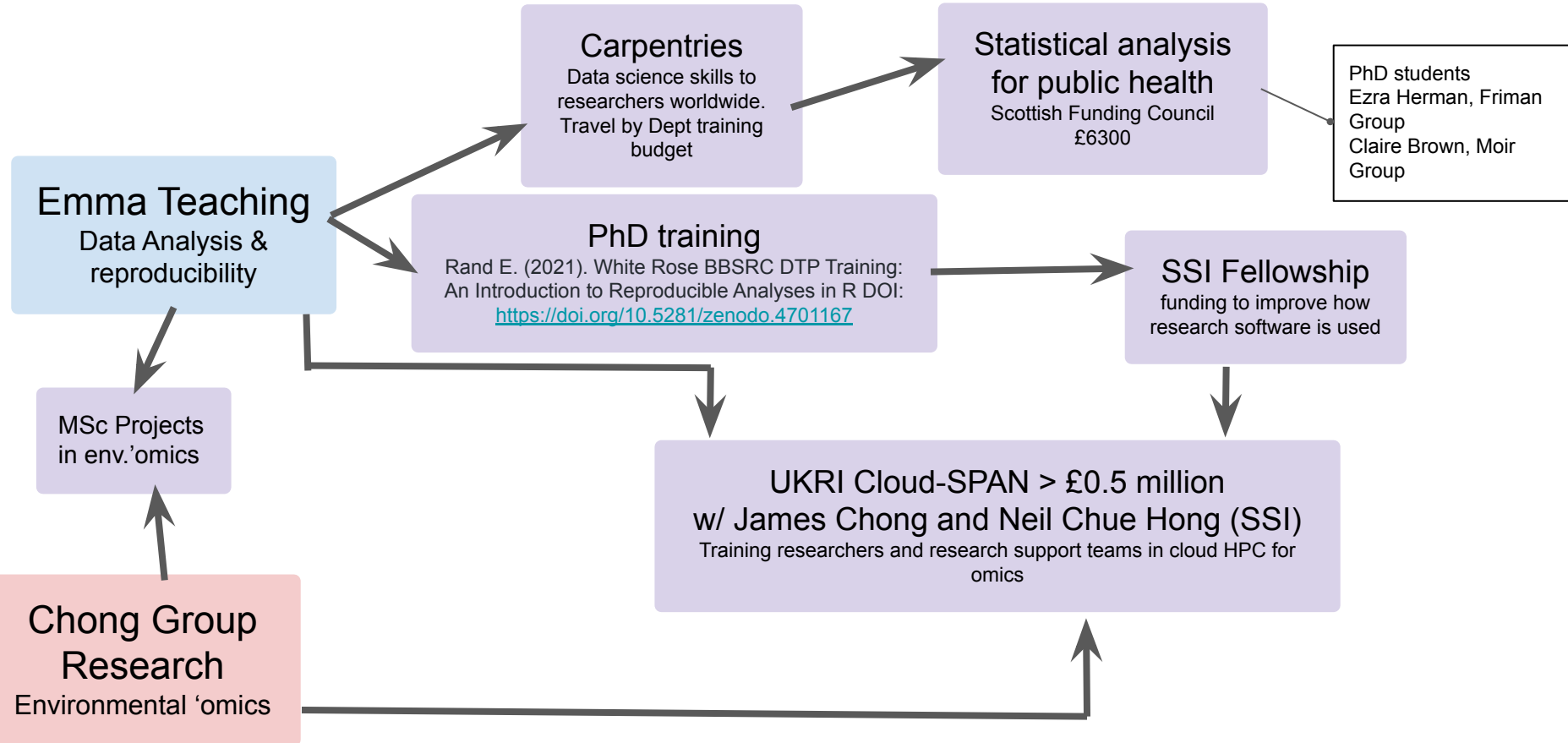
# Research + Teach = Reach?



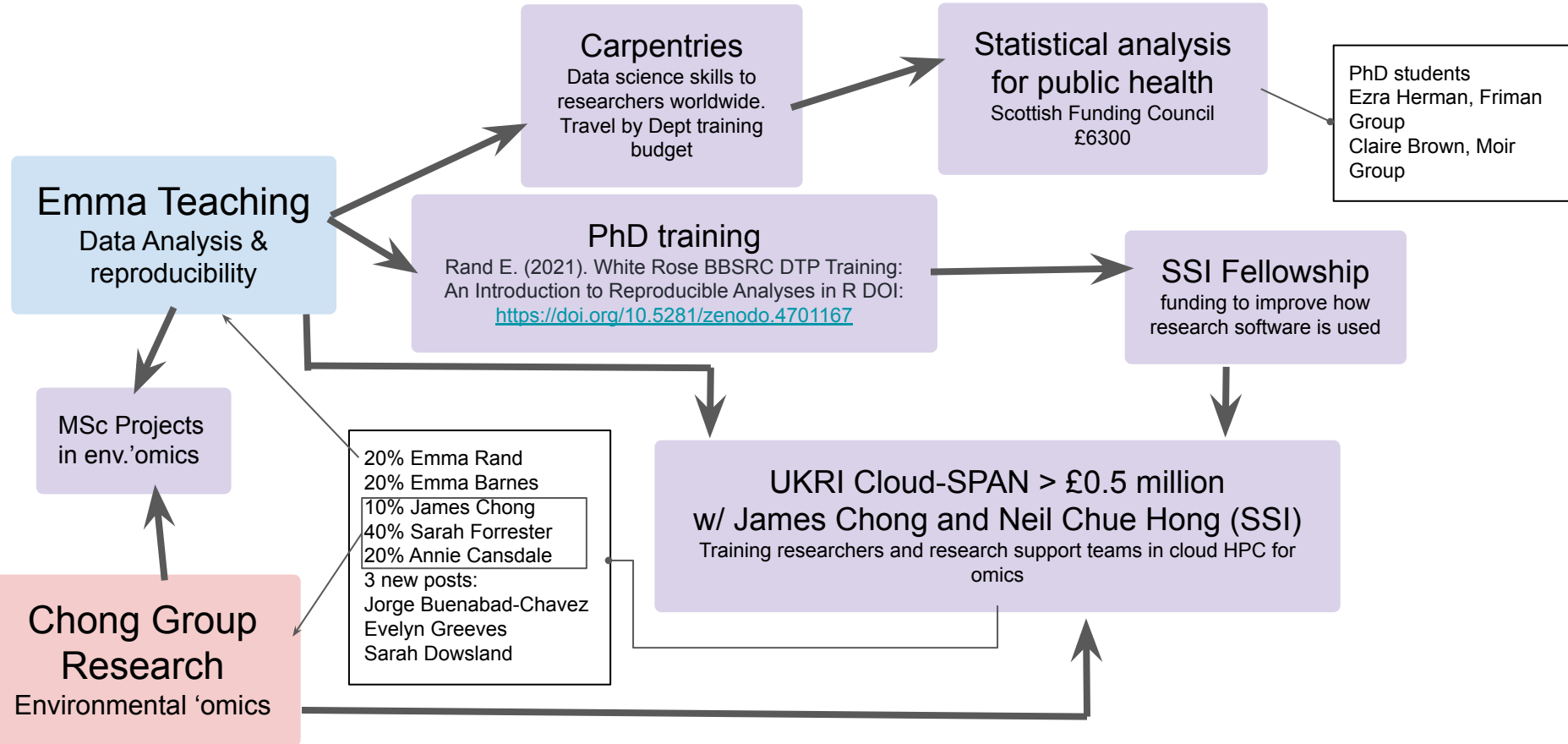
# Research + Teach = Reach?



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# Research + Teach = Reach?



# What are we going to do now?

- What do we do well already?
  - How did you find, make and keep your professional friends in the department?
- What could we do better?
  - What barriers or constraints do you perceive when interacting with your current networks or growing them?
  - What stops you finding new people?
- What would you like to see happening in the future?
  - In an ideal world!
  - What sort of induction processes, mentoring, working and socialising would help?





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Find your discussion group and go forth!

<https://forms.gle/CCL5A5fHe95KqFtAA>

