

# PCA: Principle Component Analysis

Seré Williams

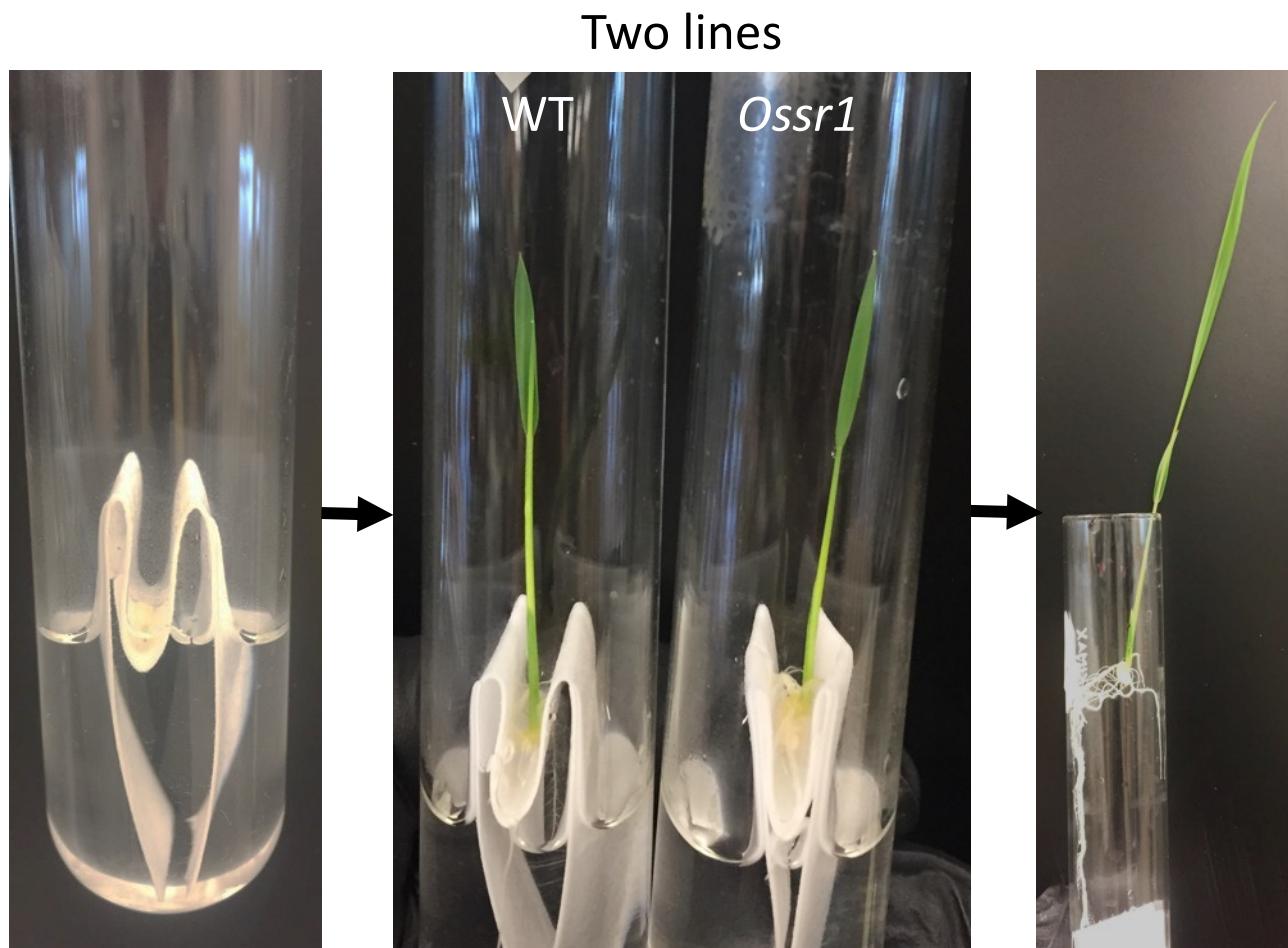
August 9, 2019

# RNA-seq of WT and *Ossr1* seedlings

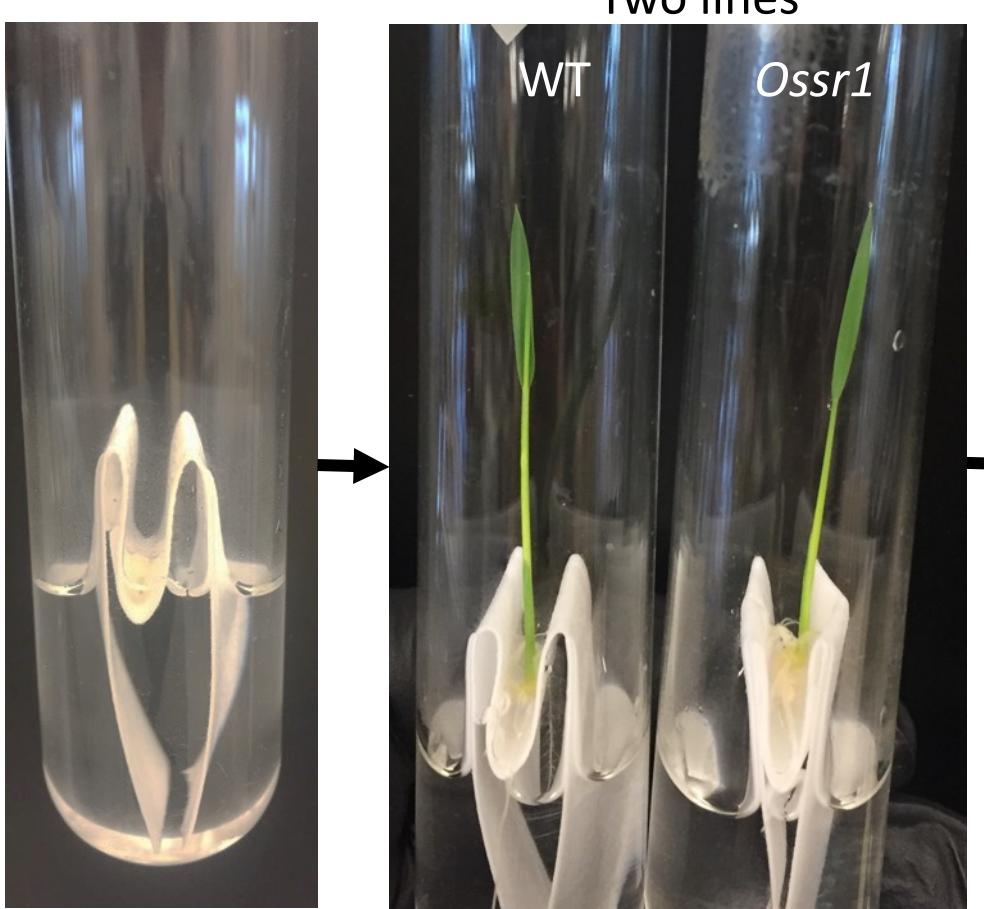
Two lines



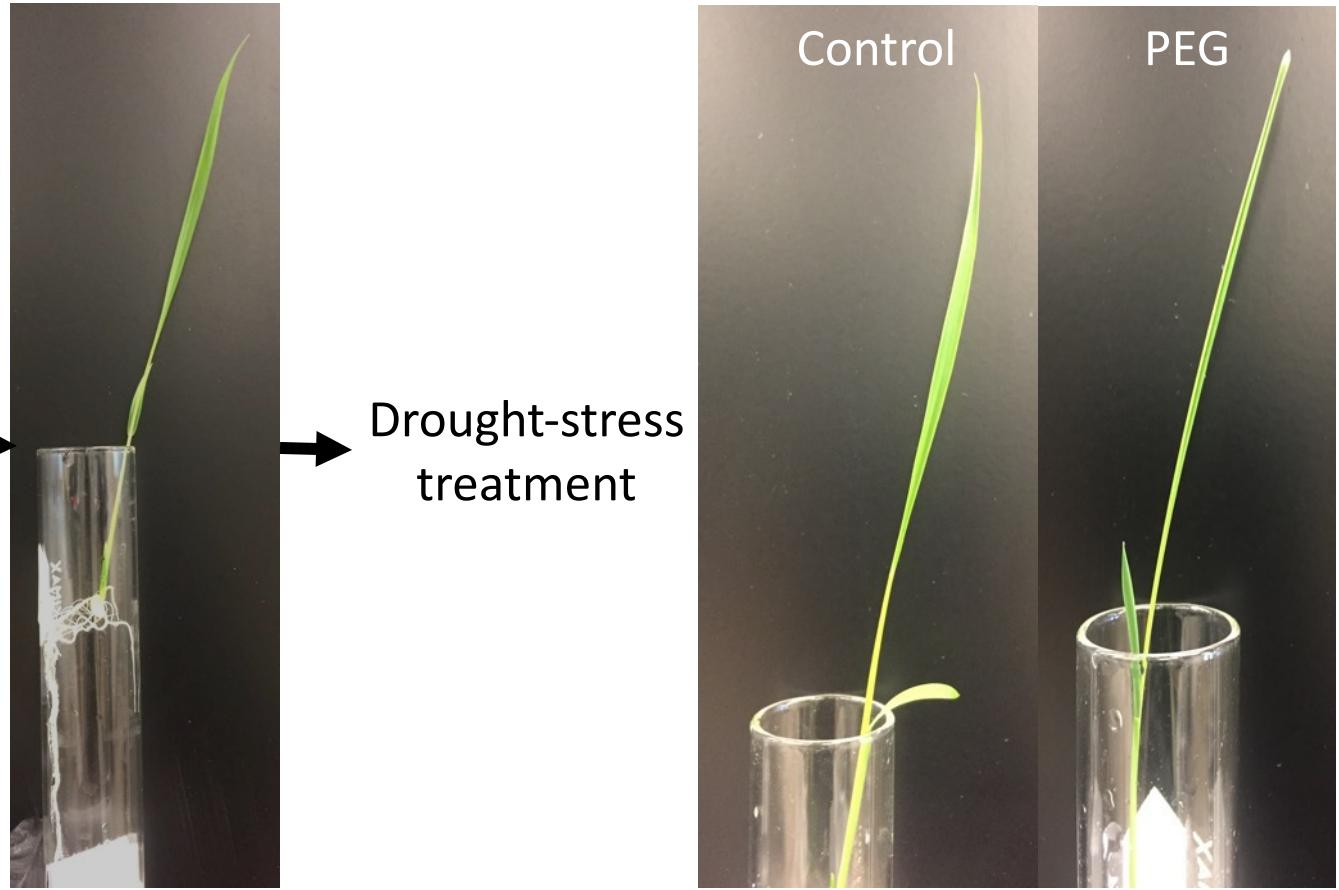
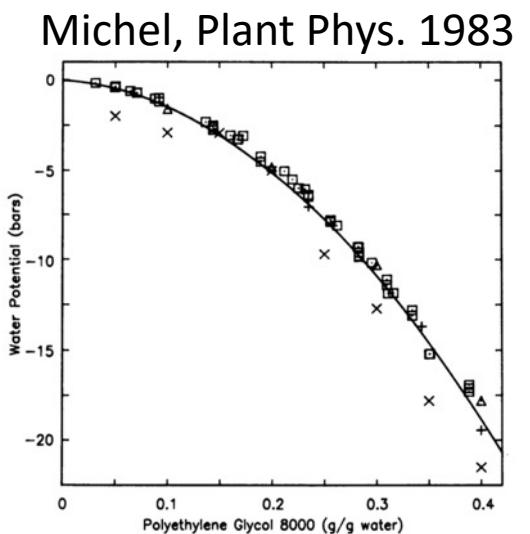
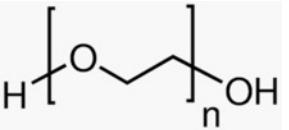
# RNA-seq of WT and *Ossr1* seedlings: Experimental Design



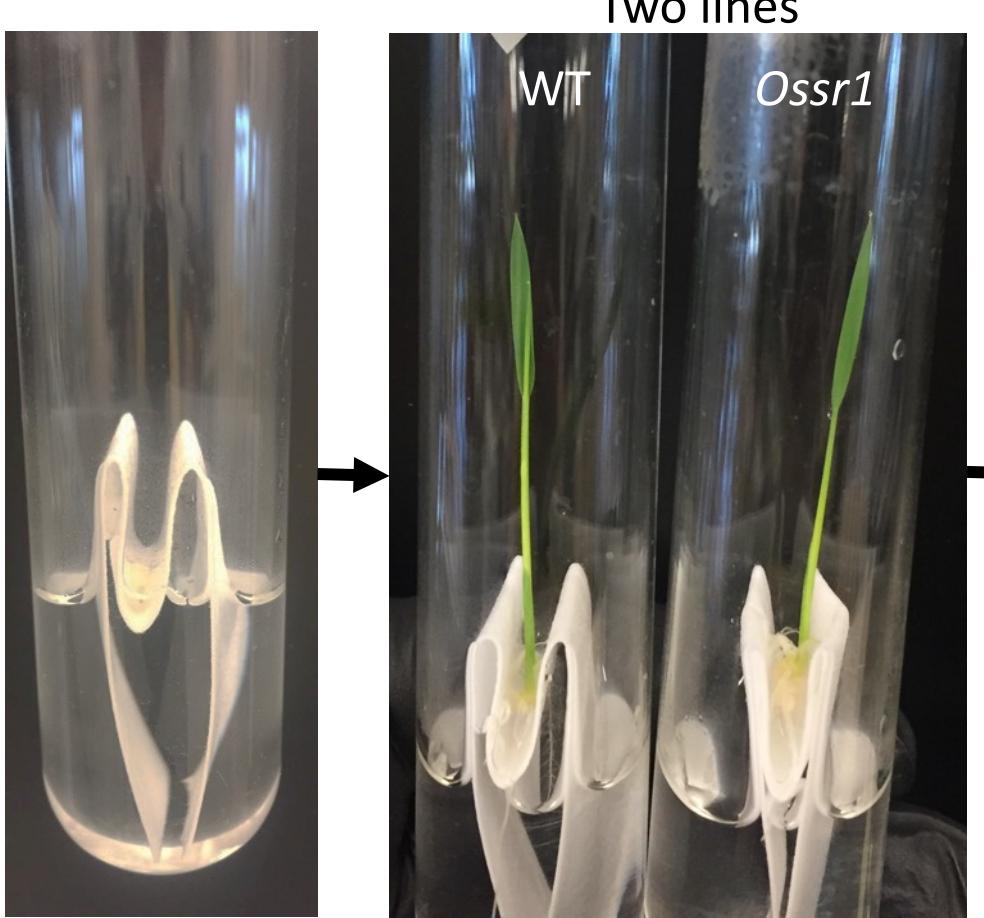
# RNA-seq of WT and *Ossr1* seedlings: Experimental Design



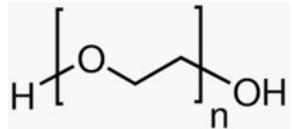
Polyethylene glycol



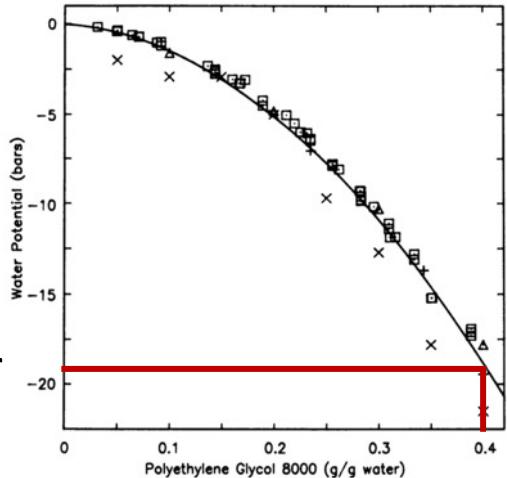
# RNA-seq of WT and *Ossr1* seedlings: Experimental Design



Polyethylene glycol



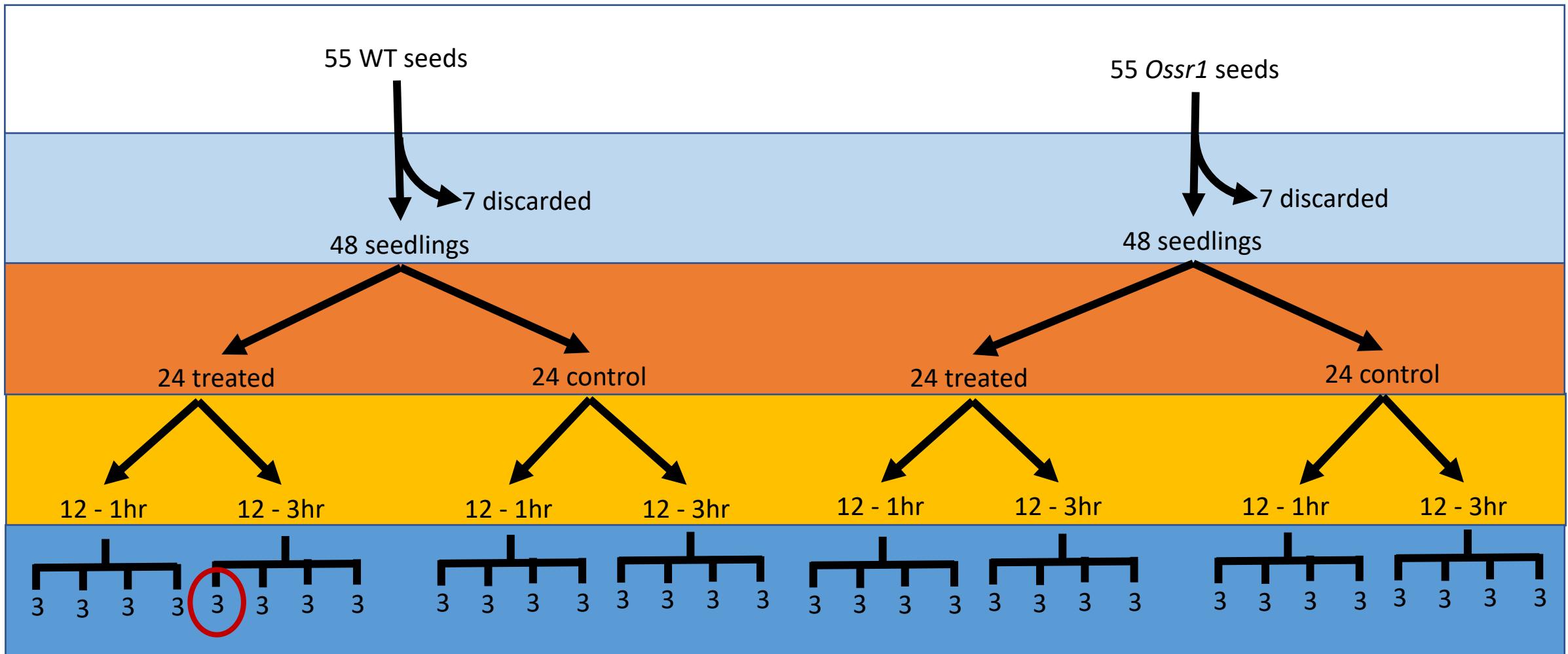
40% PEG 8000 = -18 bar



Control

PEG

# RNA-seq of WT and *Ossr1* seedlings: Experimental Design

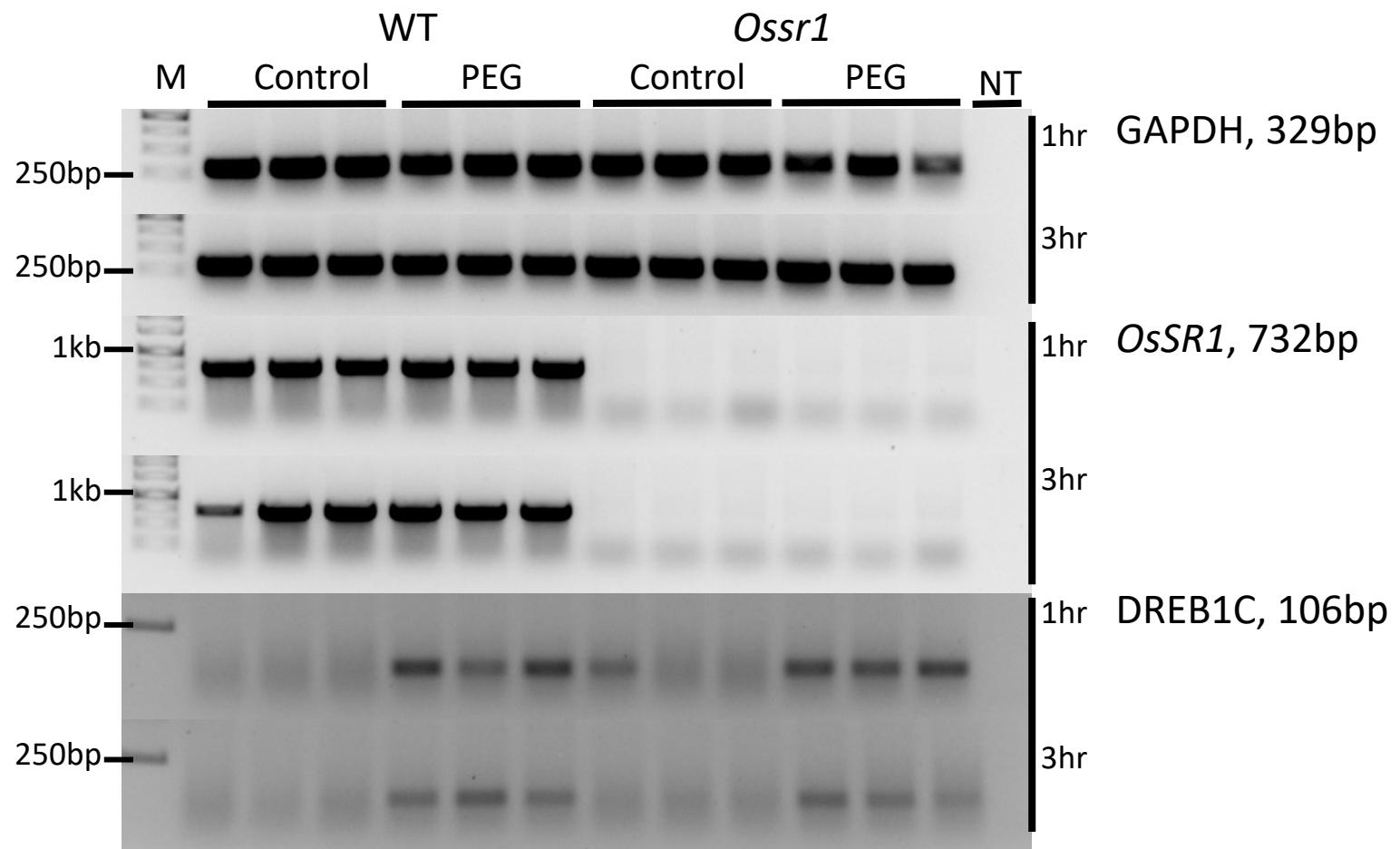


Example:

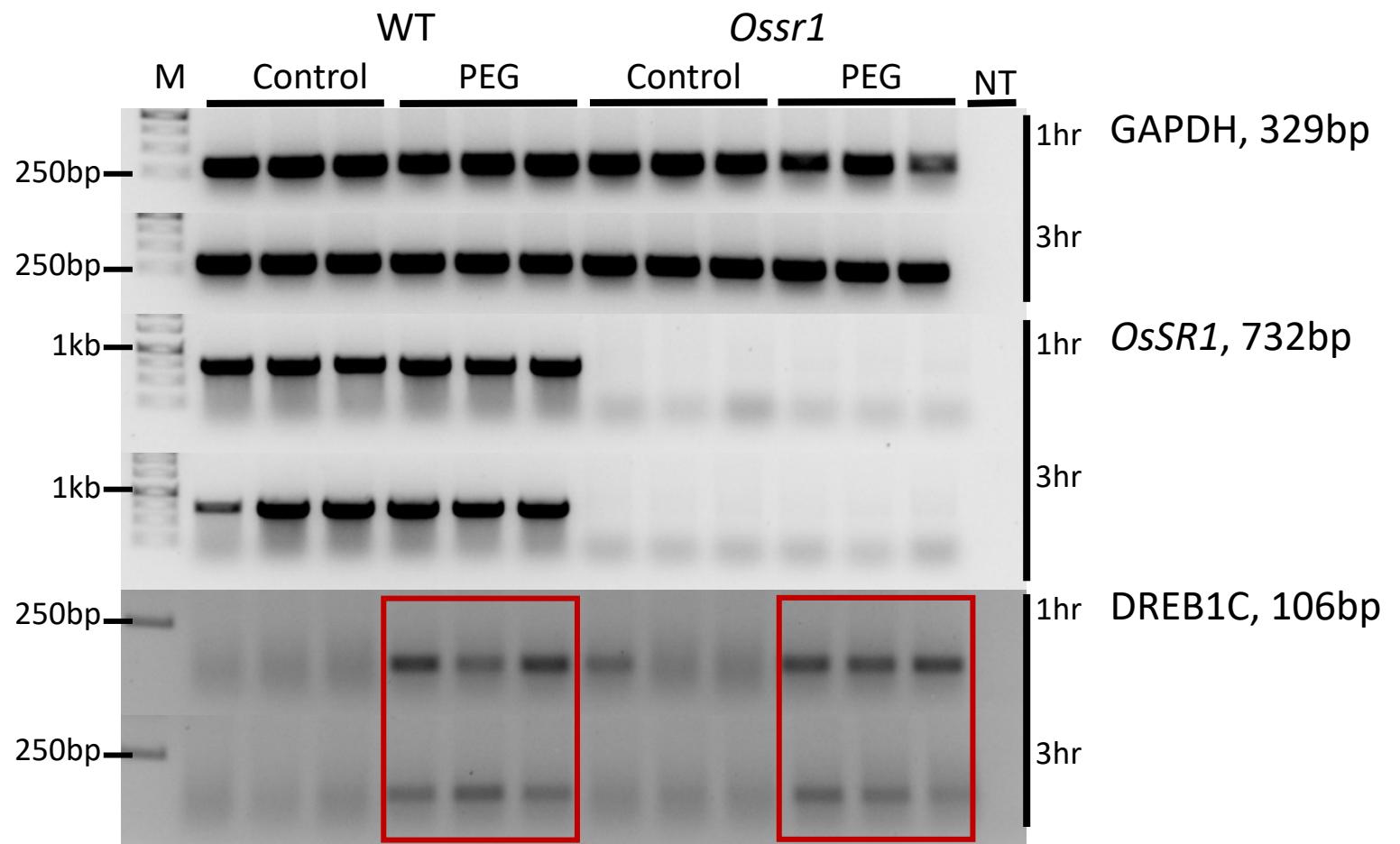
WT, Treated, 3hr, Bio Rep 1

WT\_T\_3.1

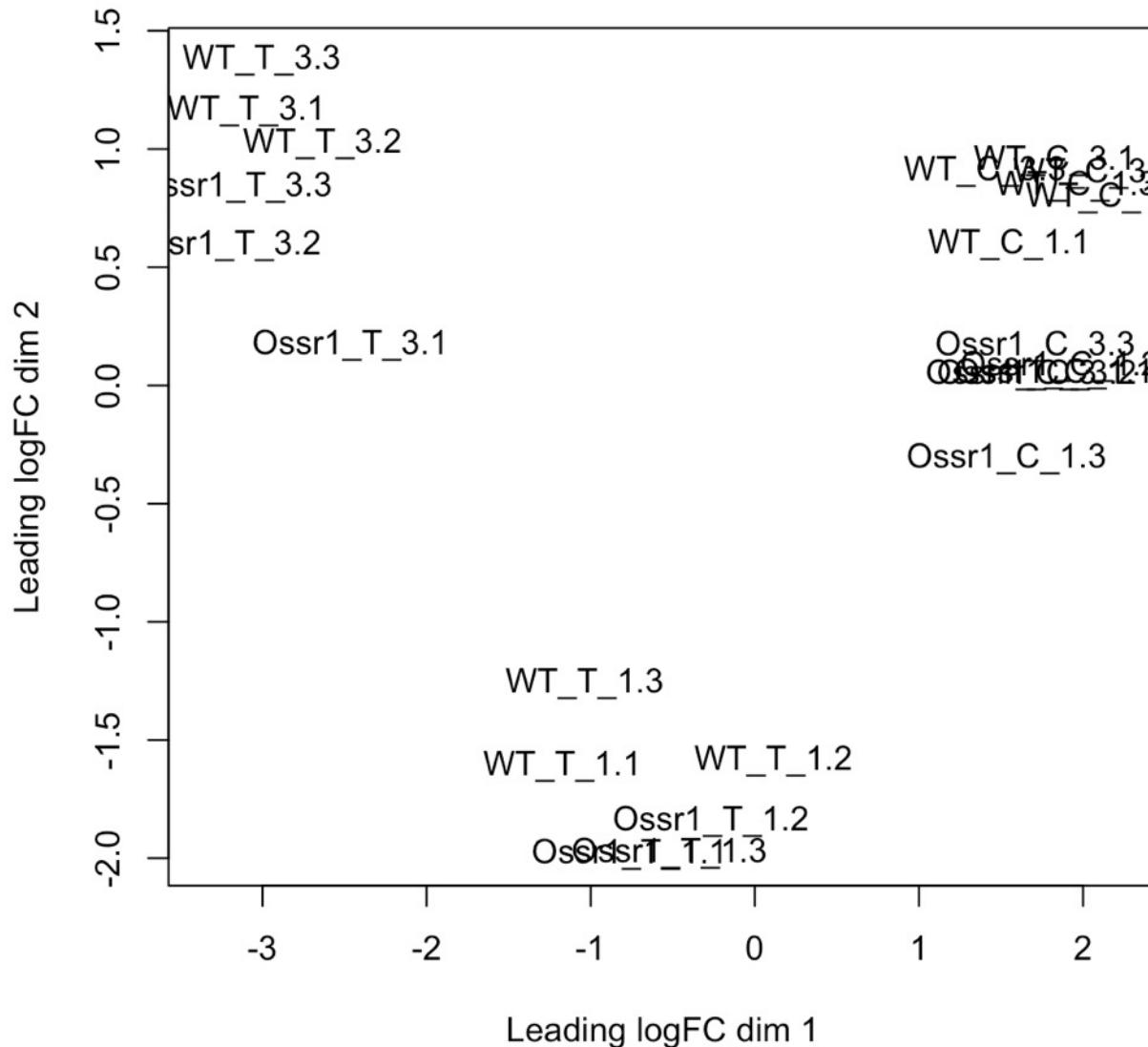
# RNA-seq of WT and *Ossr1* seedlings: Confirmation of samples



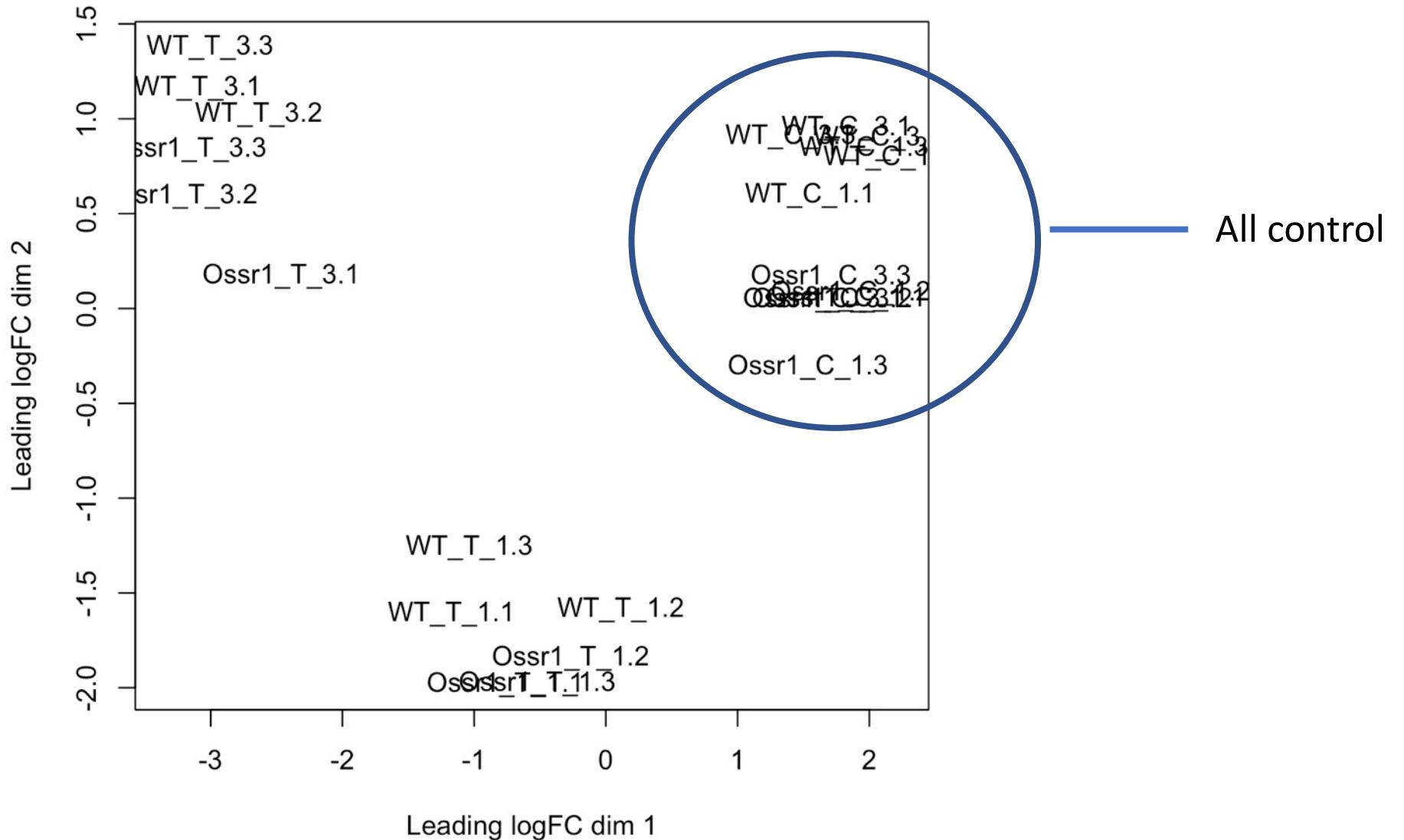
# RNA-seq of WT and *Ossr1* seedlings: Confirmation of samples



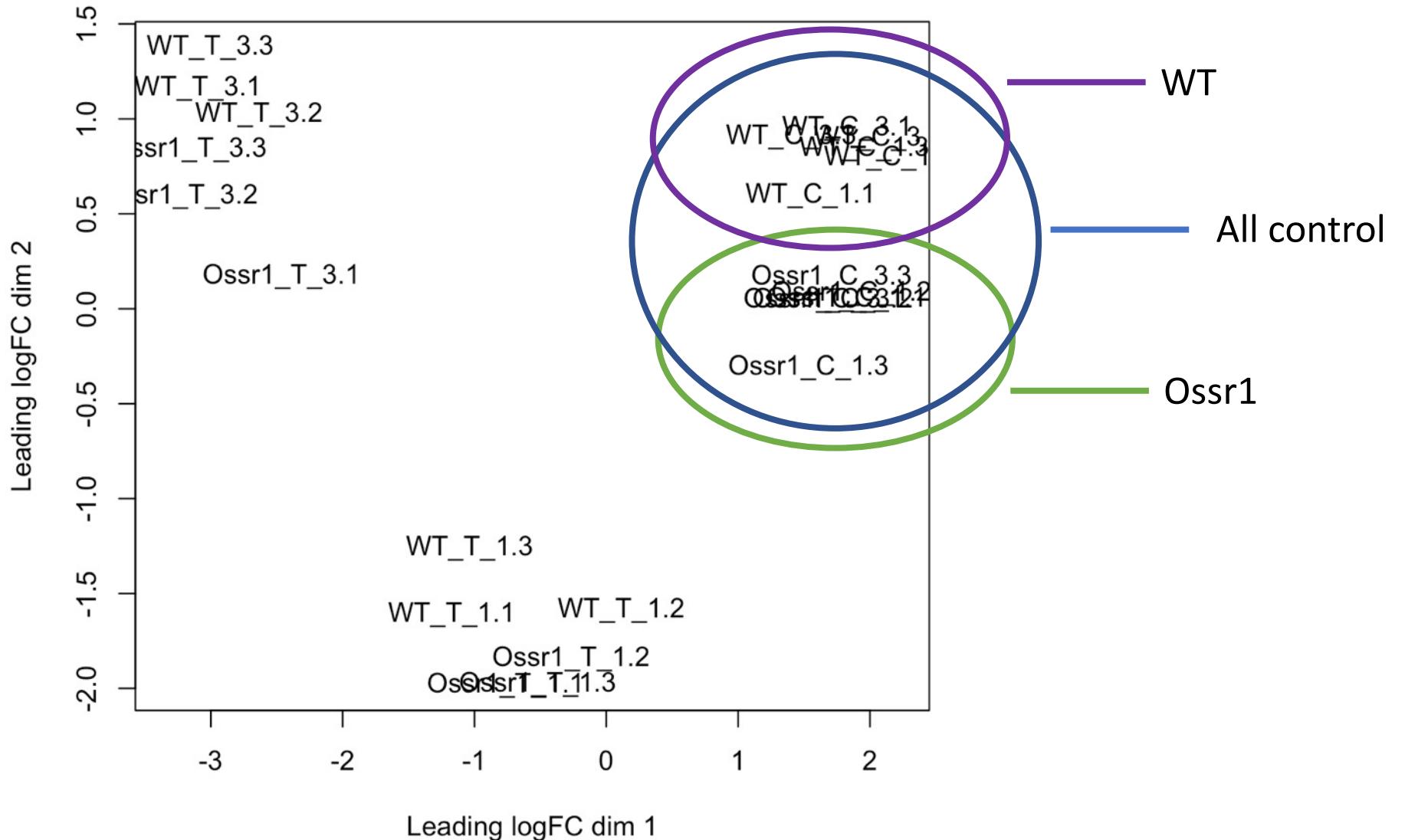
# RNA-seq of WT and *Ossr1* seedlings: Multi-dimensional scaling plot



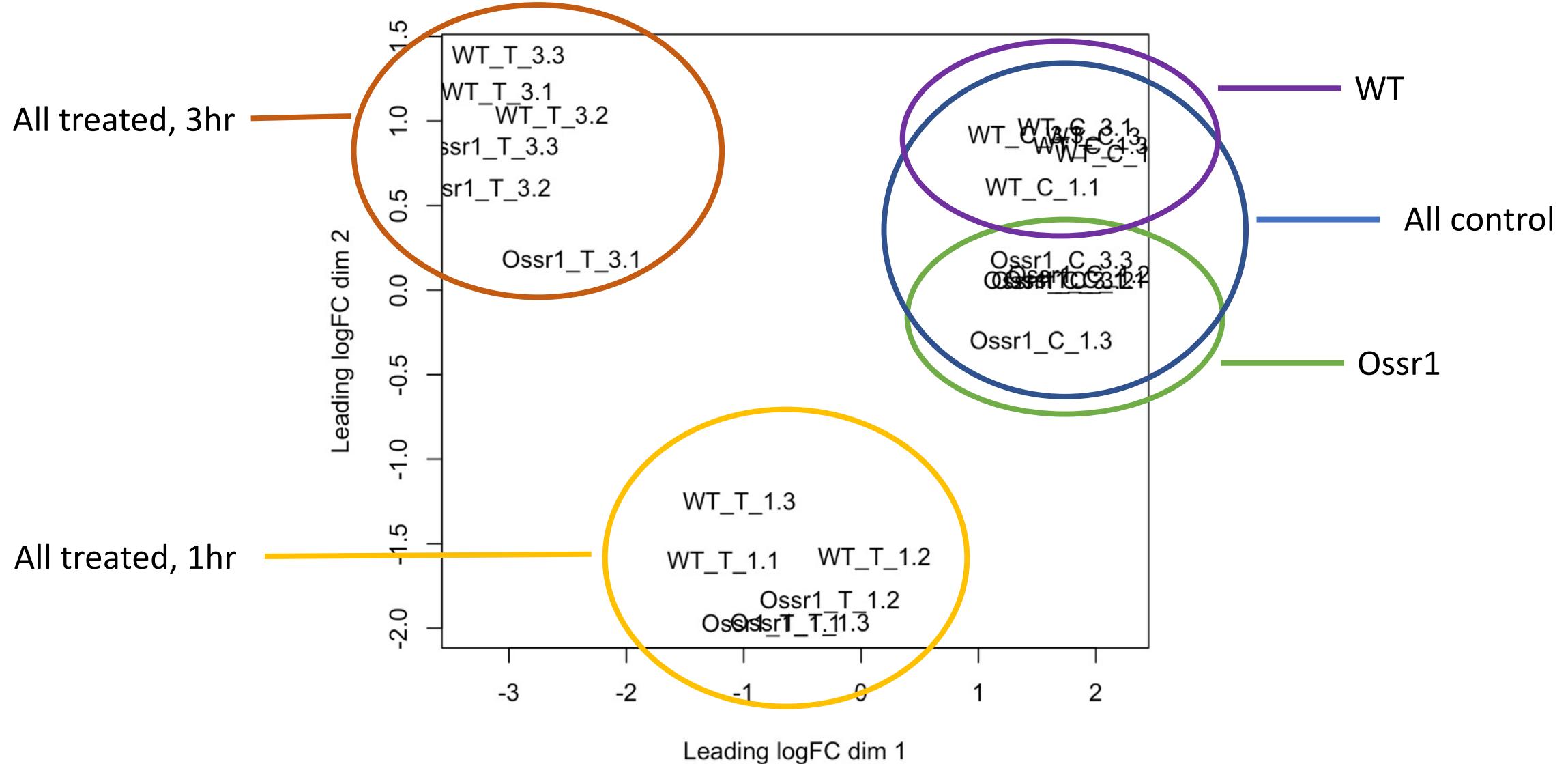
# RNA-seq of WT and *Ossr1* seedlings: Multi-dimensional scaling plot



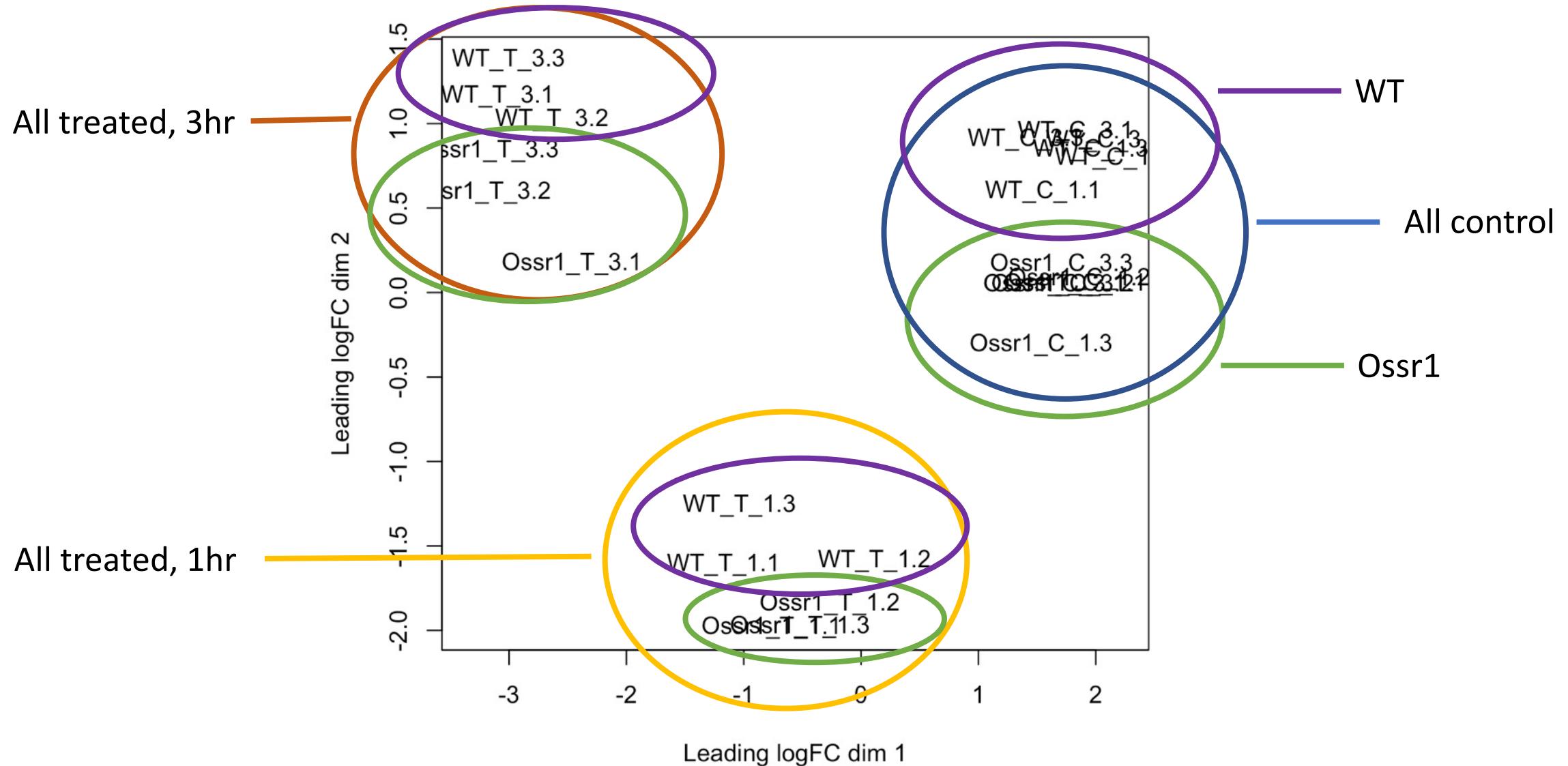
# RNA-seq of WT and *Ossr1* seedlings: Multi-dimensional scaling plot



# RNA-seq of WT and Ossr1 seedlings: Multi-dimensional scaling plot

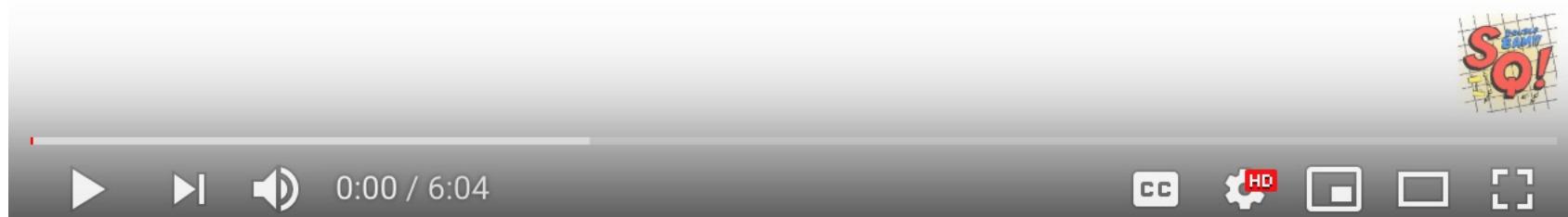


# RNA-seq of WT and Ossr1 seedlings: Multi-dimensional scaling plot





# StatQuest...



[https://www.youtube.com/watch?v=HMOI\\_lkzW08&feature=youtu.be](https://www.youtube.com/watch?v=HMOI_lkzW08&feature=youtu.be)

# Apply it

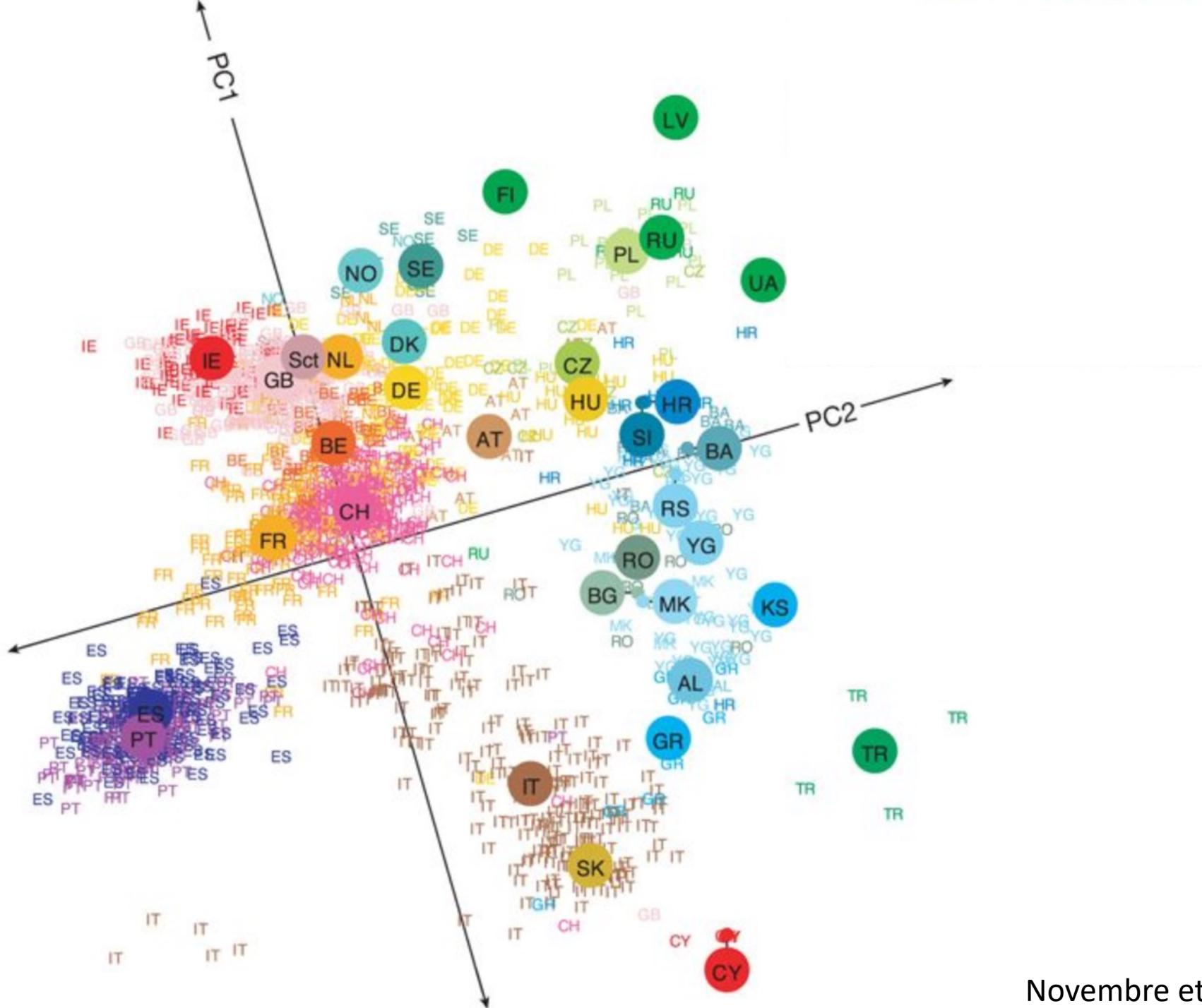
## Genes mirror geography within Europe

John Novembre , Toby Johnson, Katarzyna Bryc, Zoltán Kutalik, Adam R. Boyko, Adam Auton, Amit Indap, Karen S. King, Sven Bergmann, Matthew R. Nelson, Matthew Stephens & Carlos D. Bustamante

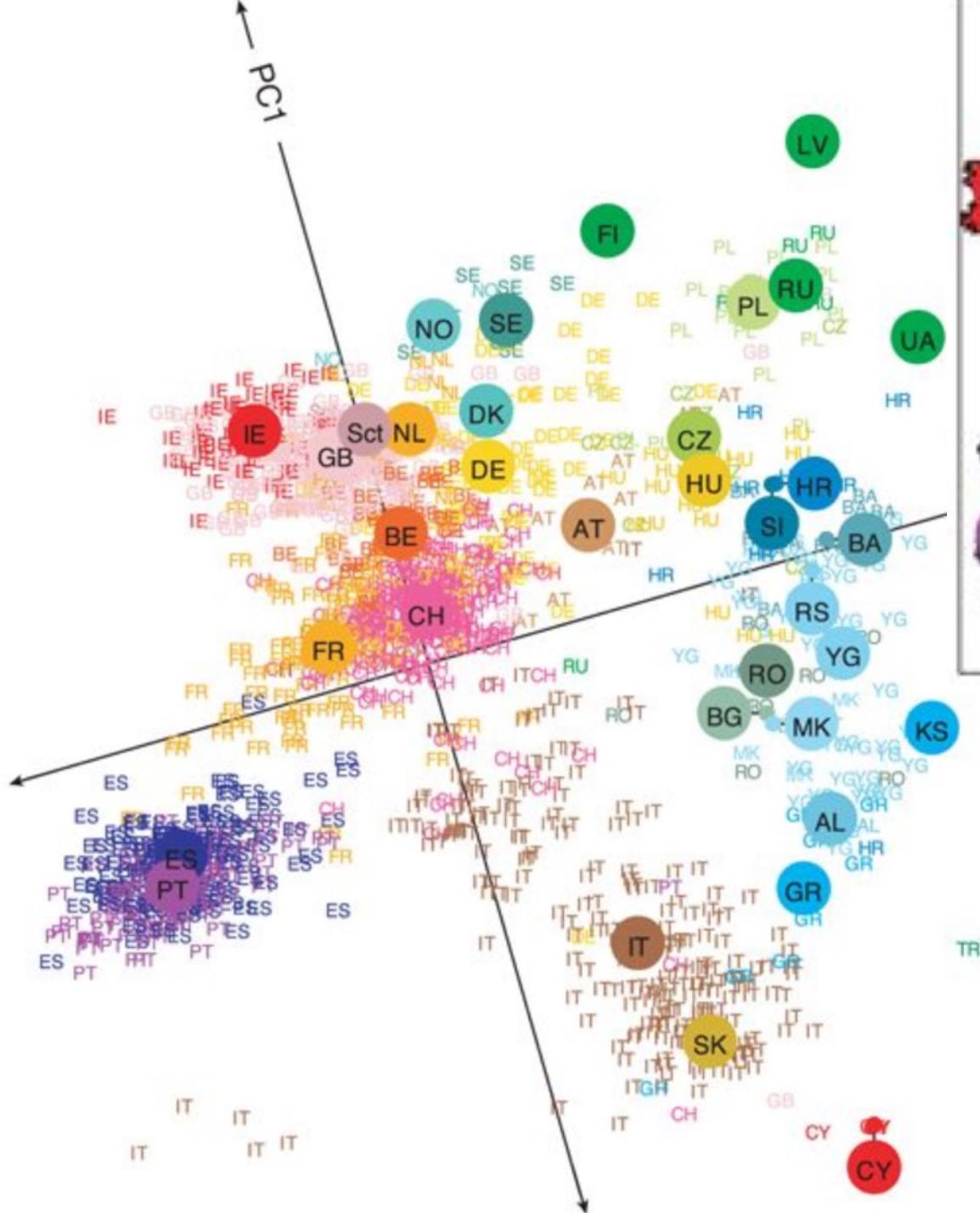
*Nature* **456**, 98–101 (06 November 2008) | [Download Citation ↓](#)

“Here we characterize genetic variation in a sample of 3,000 European individuals genotyped at over half a million variable DNA sites in the human genome.”

# Apply it



## Apply it





# Thank you

(C) OGNIS Lab

<https://www.youtube.com/watch?v=i9RQX1oGtEs>



# Questions?

(C) OGNIS Lab

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