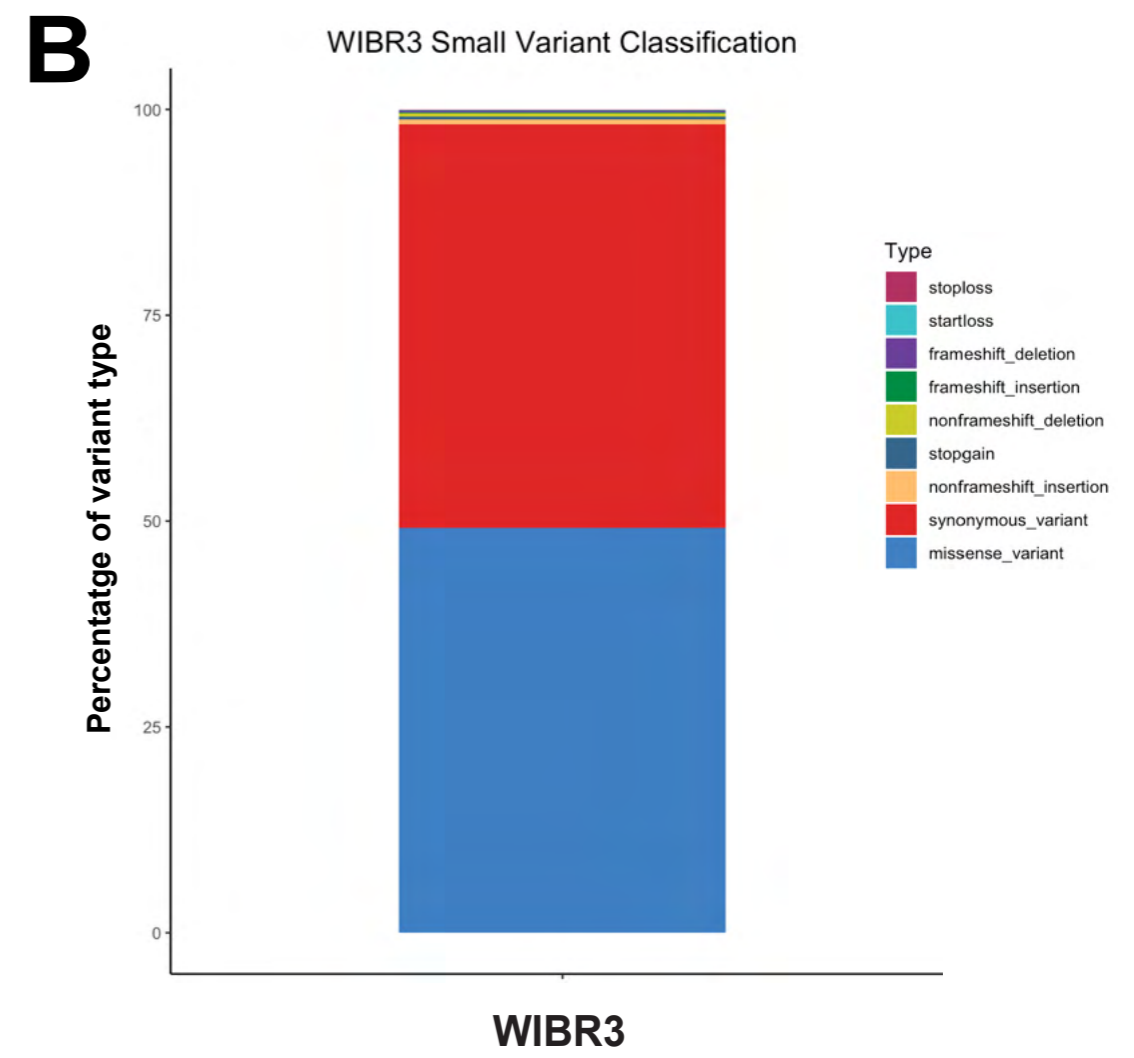
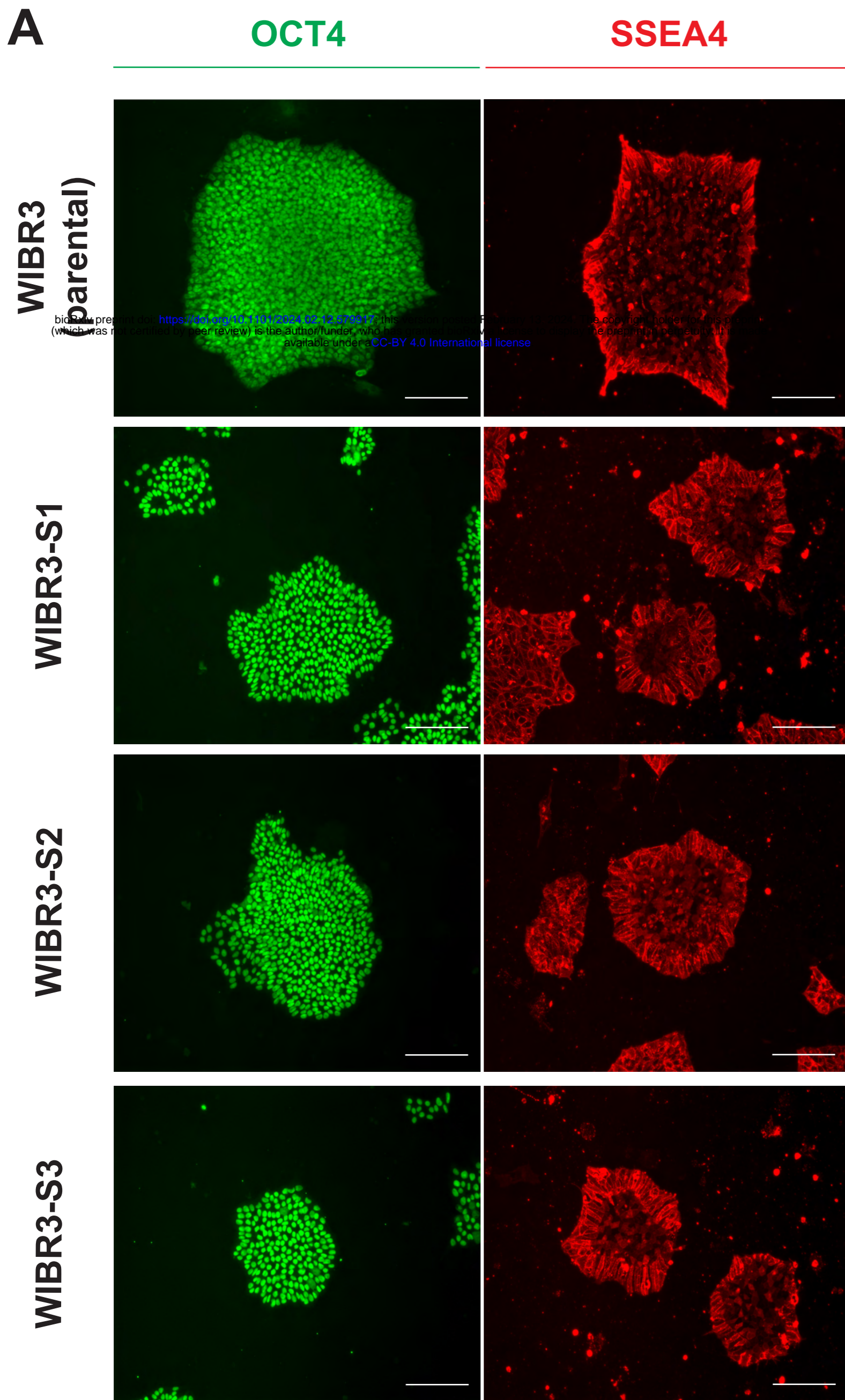
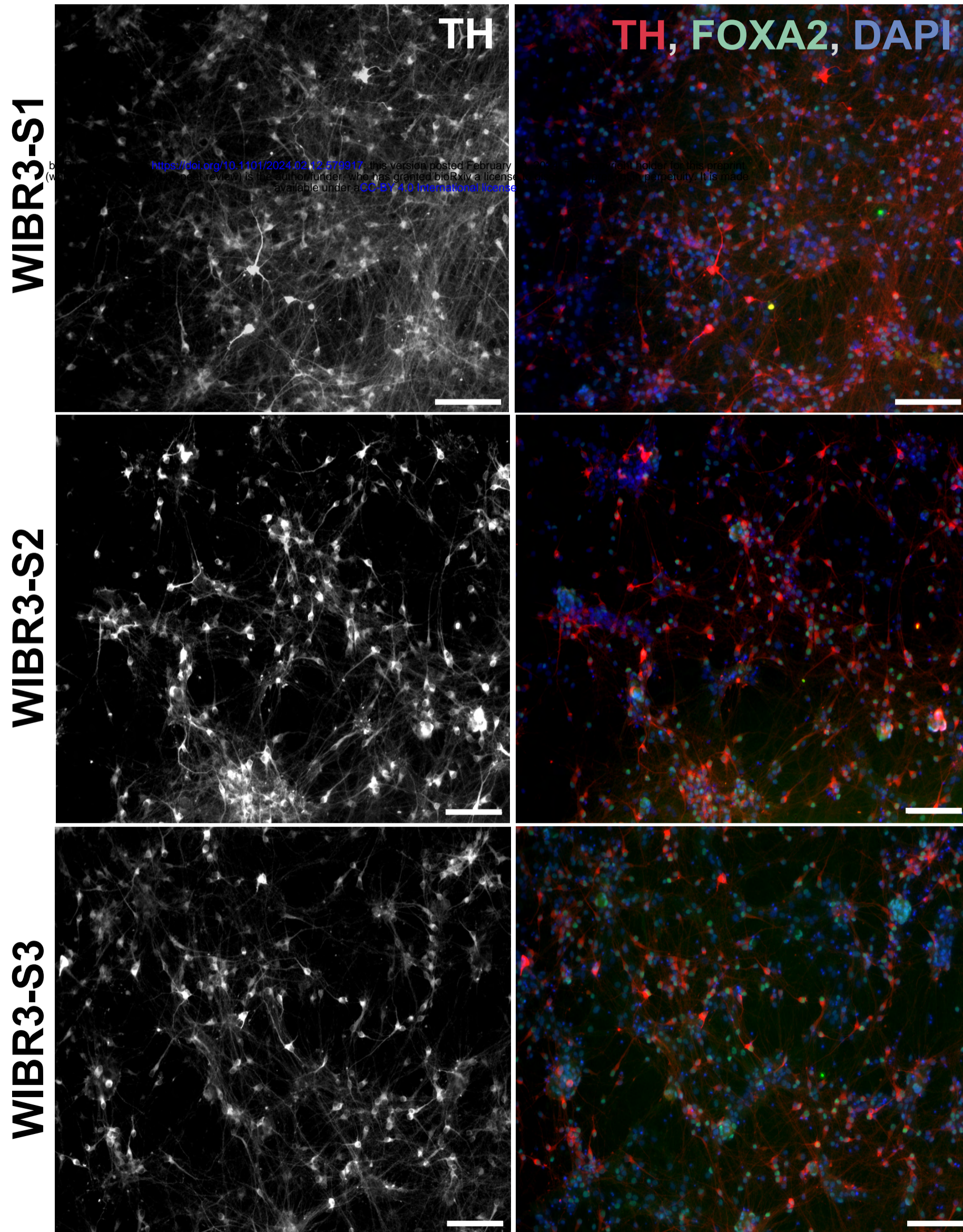


# Supplemental Figure 1, Busquets et al.

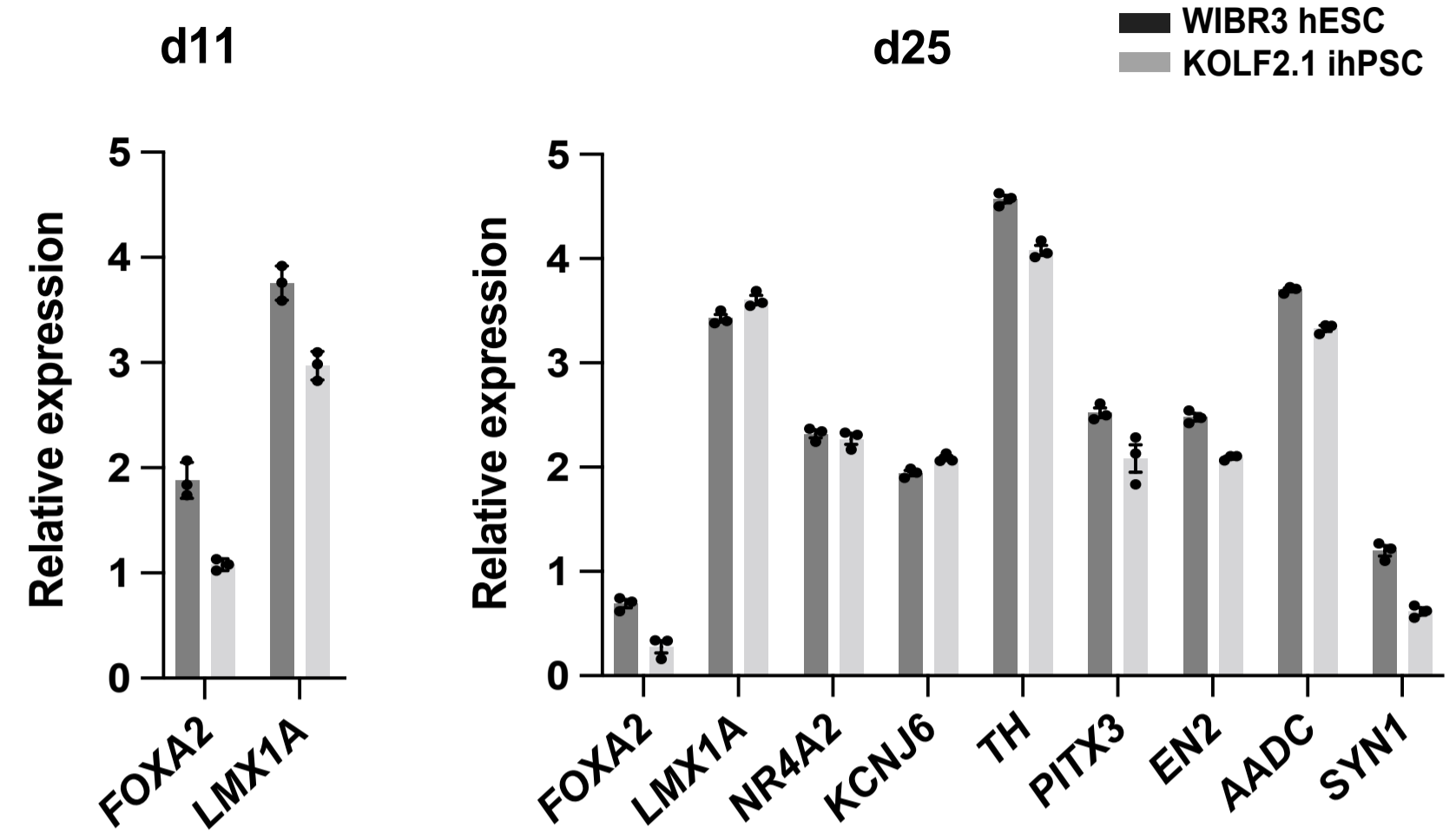


Supplemental Figure 2, Busquets et al.

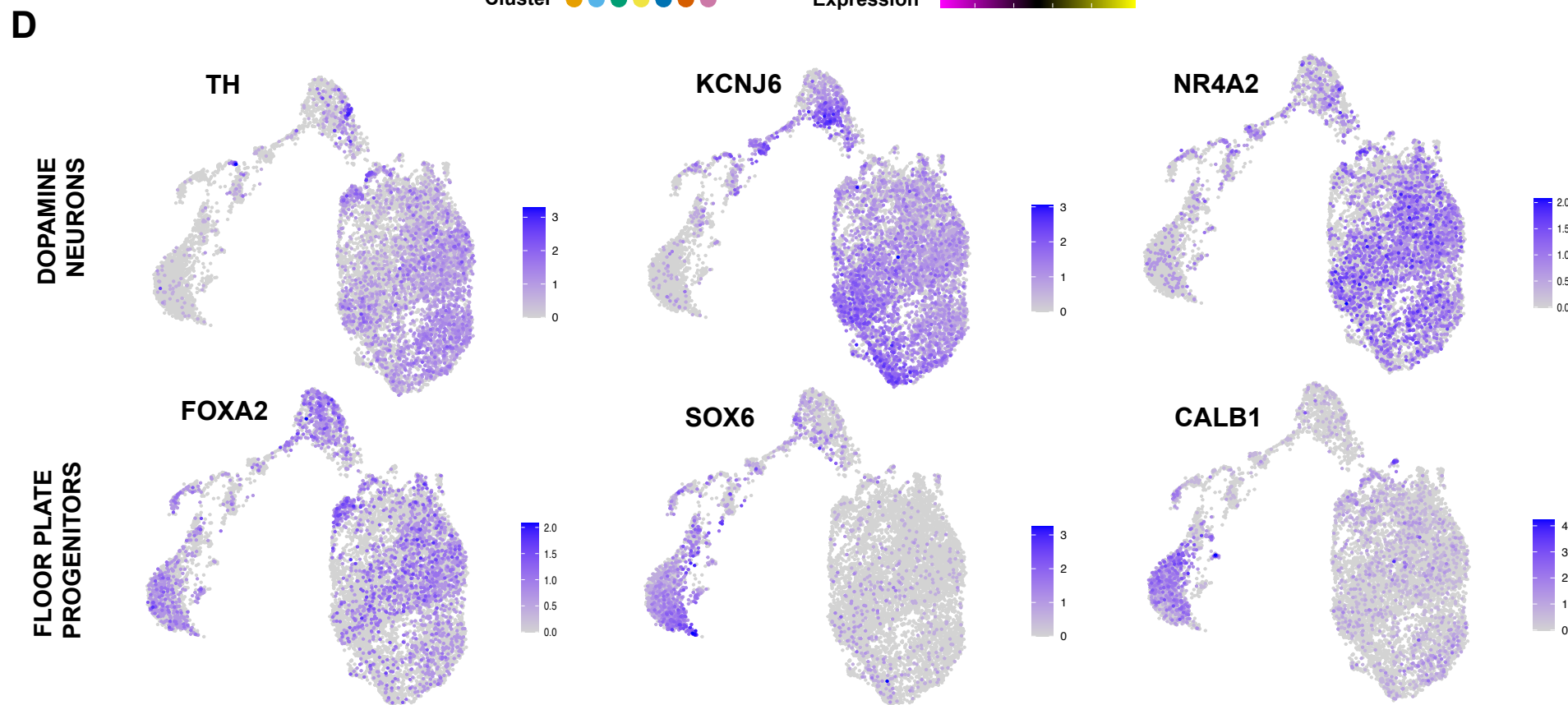
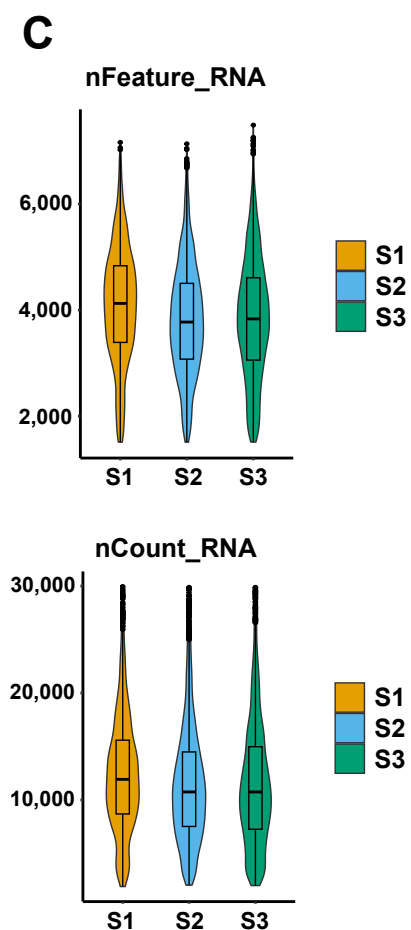
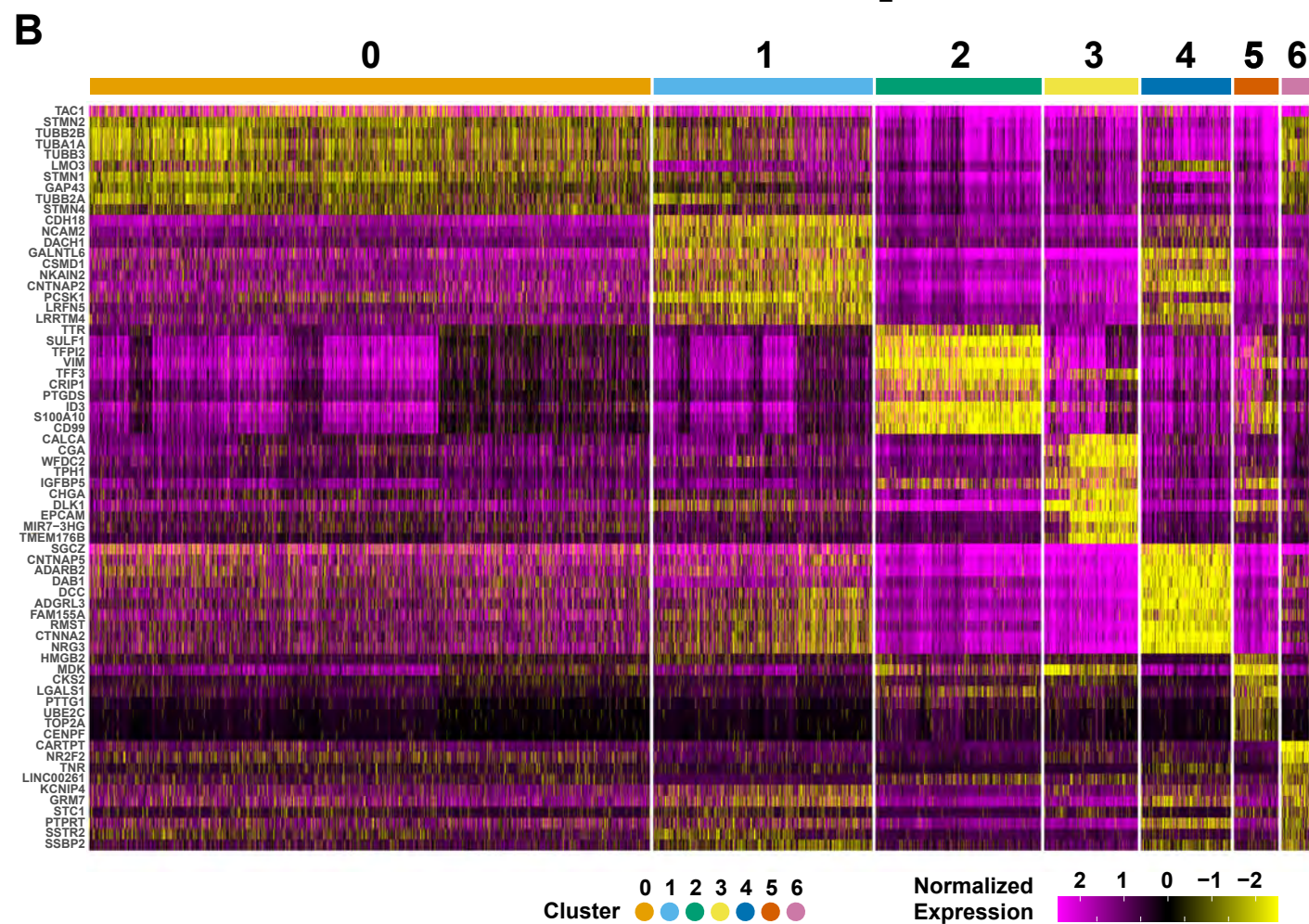
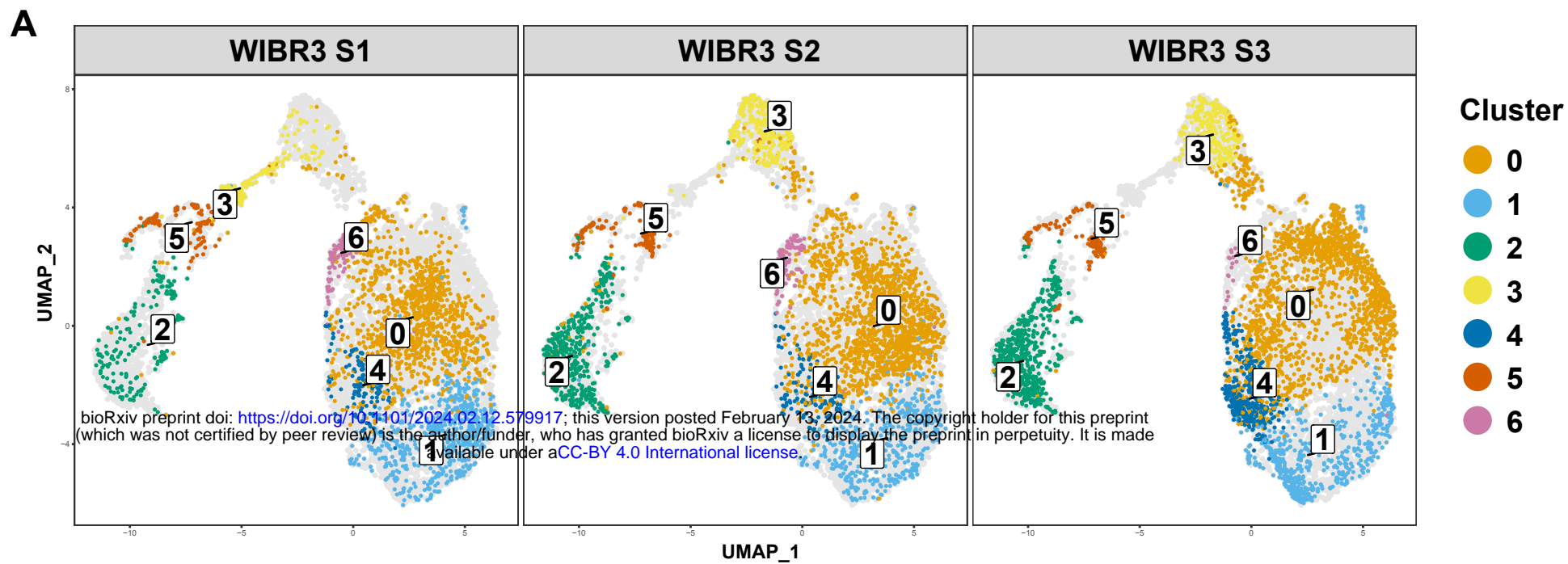
**A**



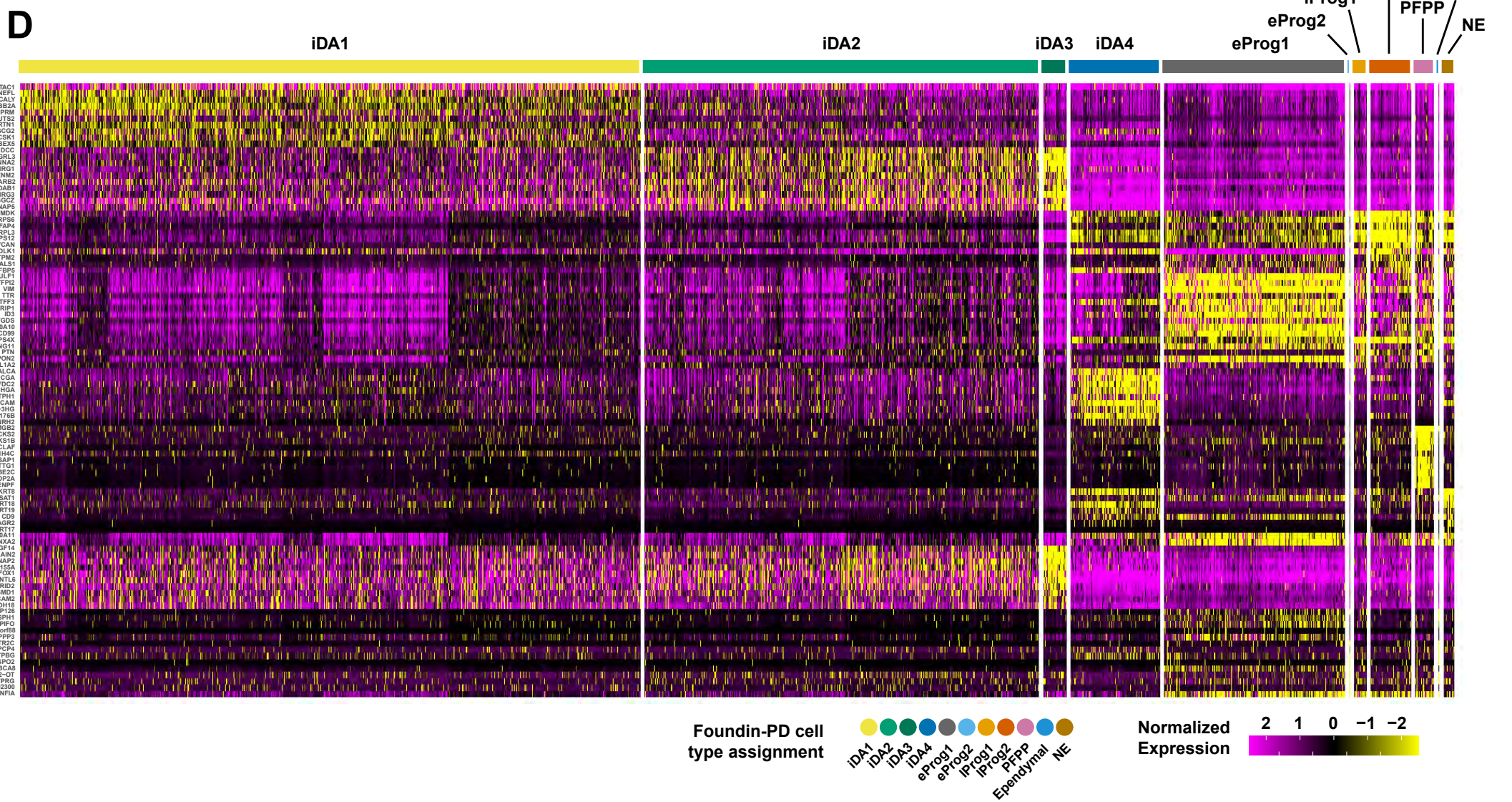
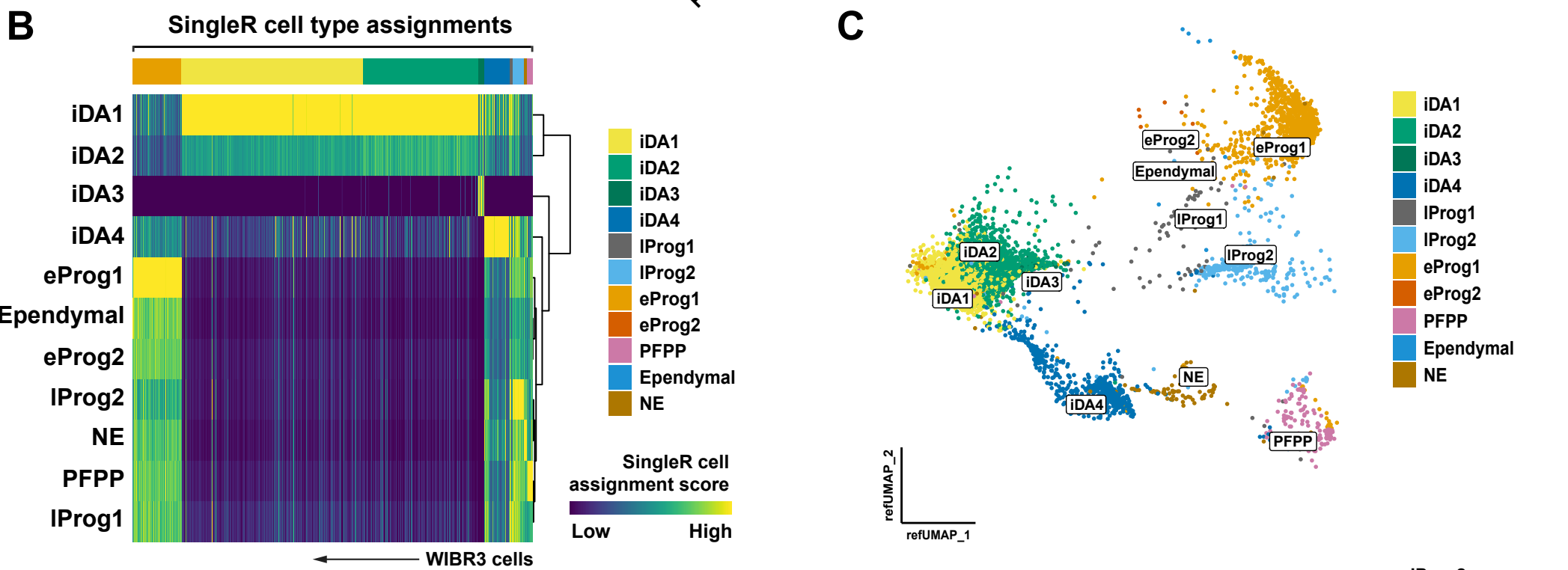
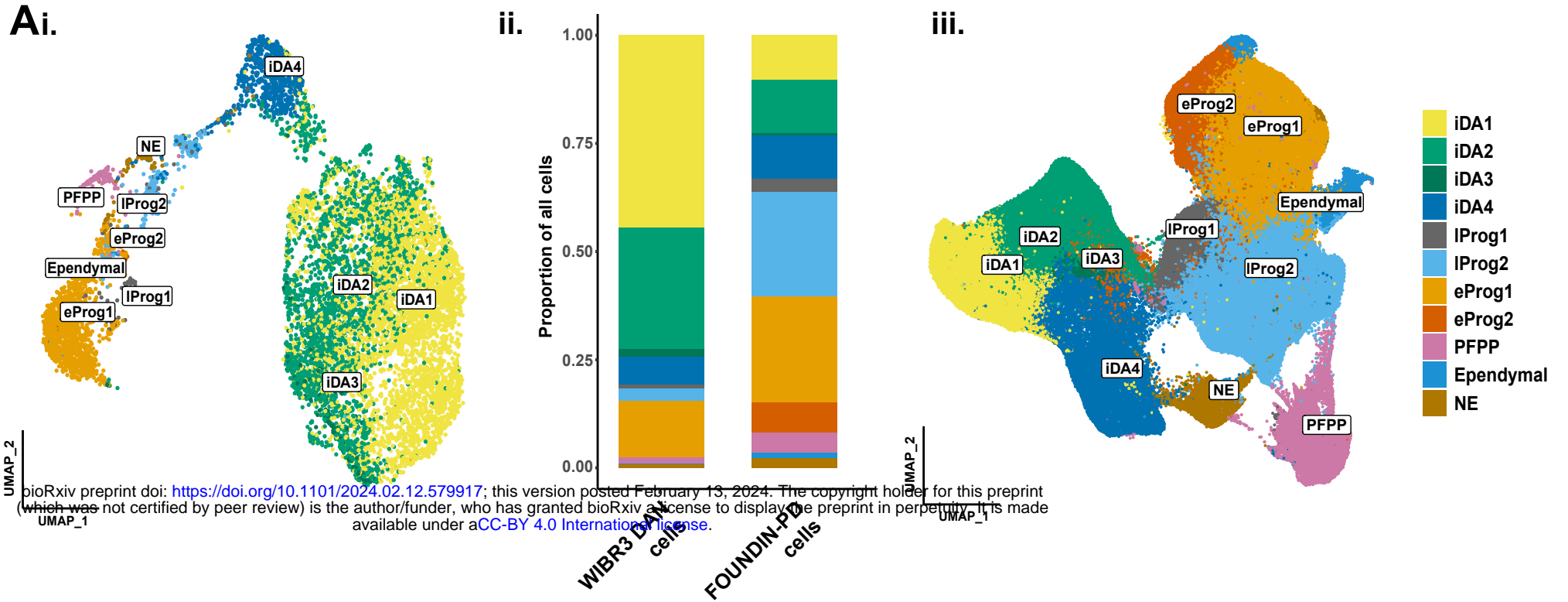
**B**



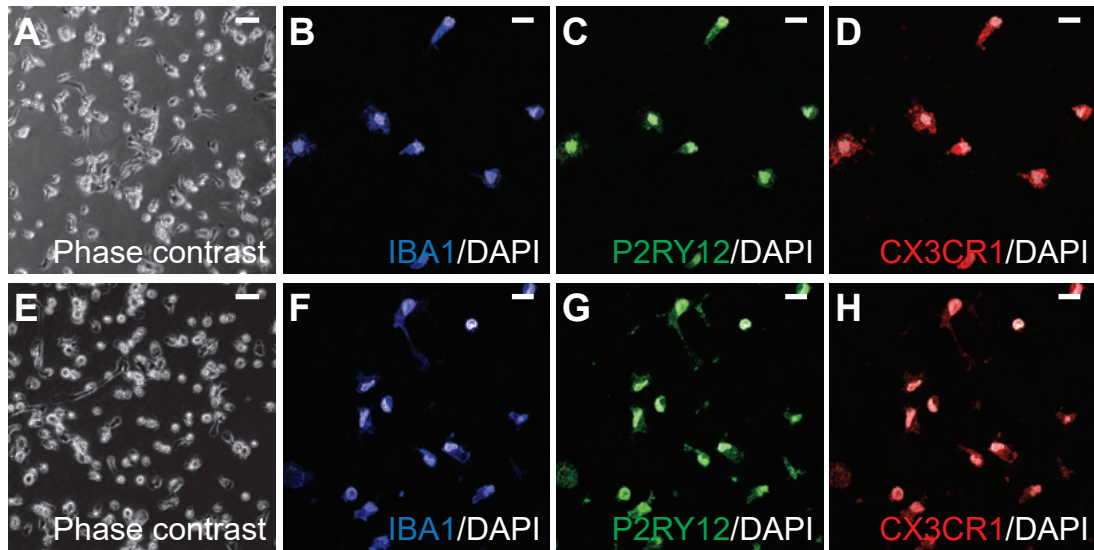
# Supplemental Figure 3, Busquets et al.



Supplemental Figure 4, Busquets et al.,

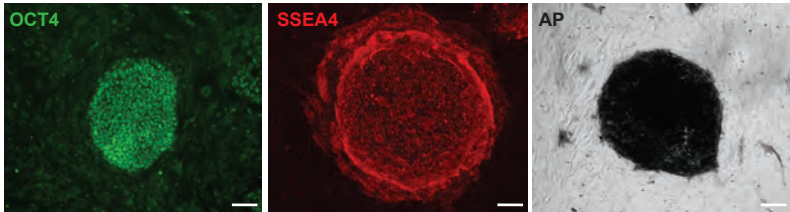


## Supplemental Figure 5. Microglia ICC, Busquets et al.

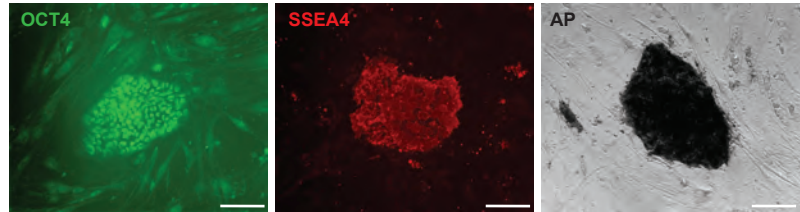


# Supplemental Figure 6, Busquets et al.

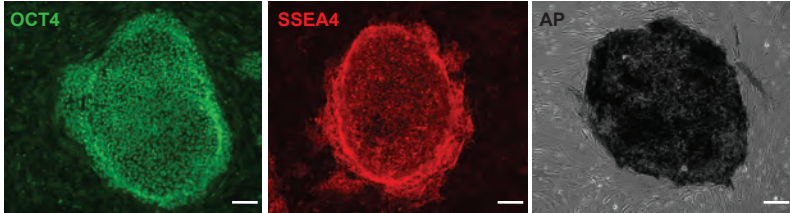
WIBR3\_EWT\_S1



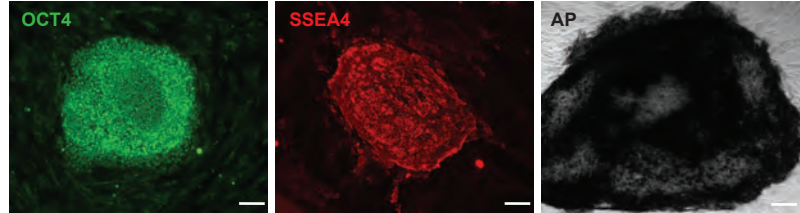
WIBR3\_EWT\_S5



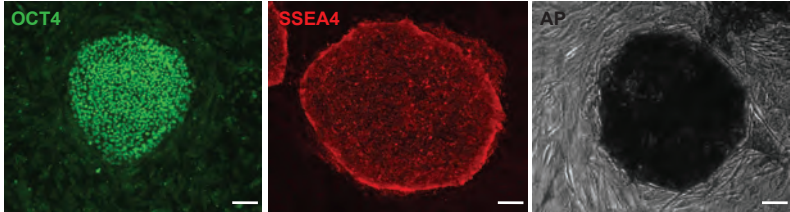
WIBR3\_EWT\_S2



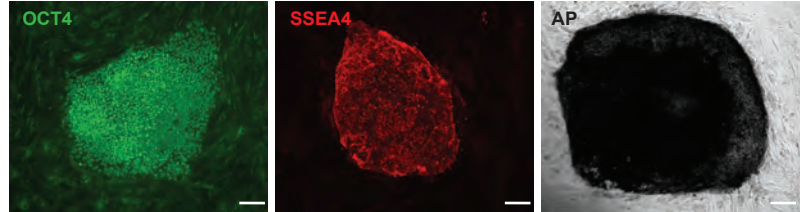
WIBR3\_EWT\_S6



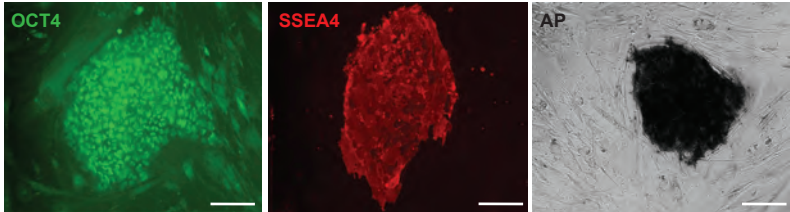
WIBR3\_EWT\_S3



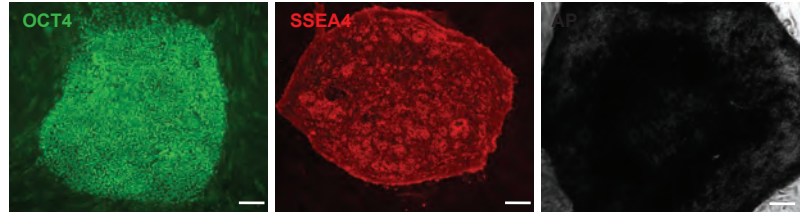
WIBR3\_EWT\_S7



WIBR3\_EWT\_S4

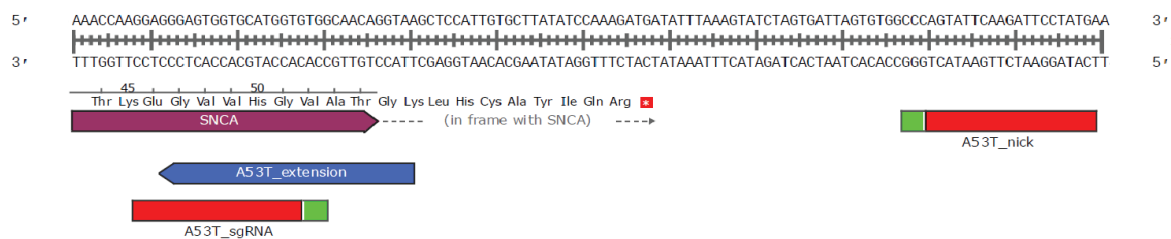


WIBR3\_EWT\_S8



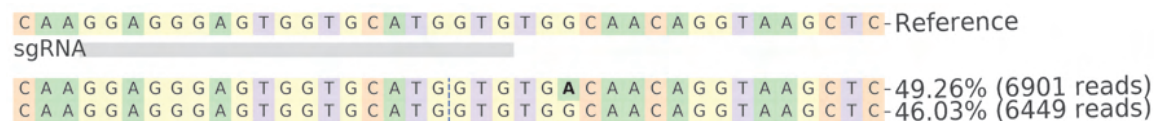
# Supplemental Figure 7. SNCA, Busquets et al.

**A**

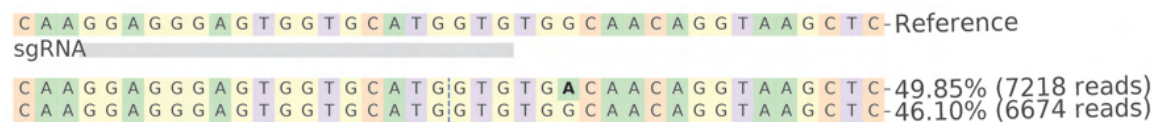


**B**

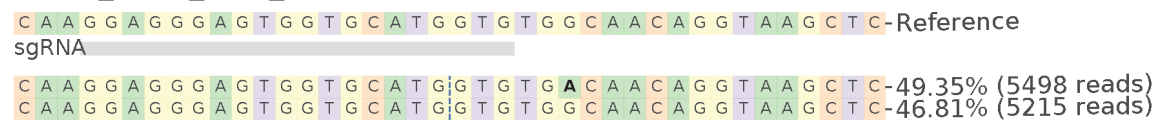
## WIBR3\_SNCA\_A53T\_1



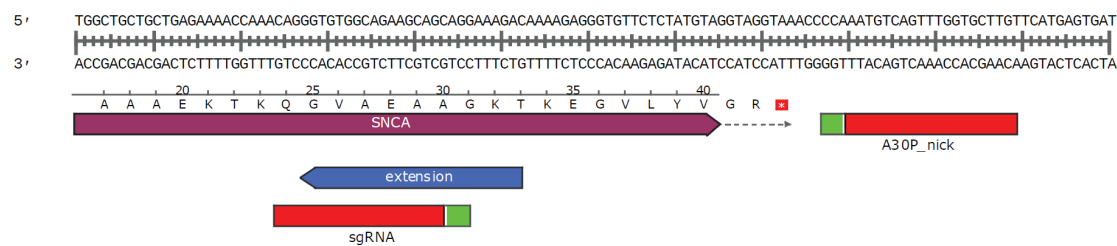
## WIBR3\_SNCA\_A53T\_2



## WIBR3\_SNCA\_A53T\_4

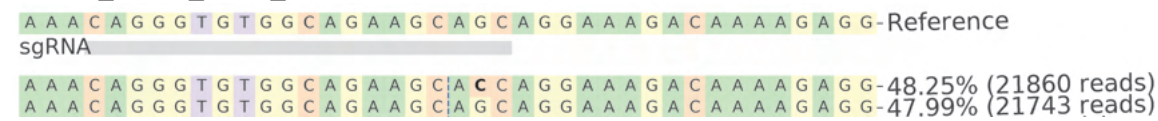


**D**



**E**

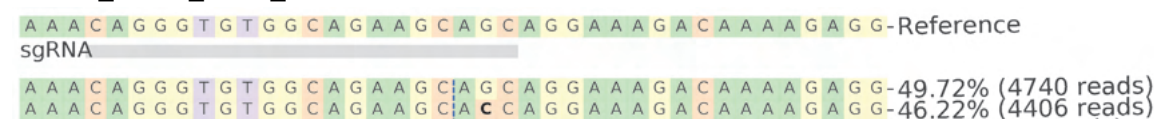
## WIBR3\_SNCA\_A30P\_A2-3



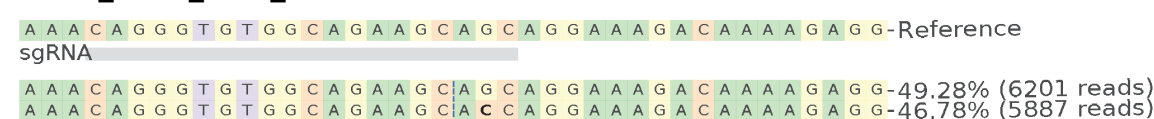
## WIBR3\_SNCA\_A30P\_Homo\_C8-2



## WIBR3\_SNCA\_A30P\_E1-3

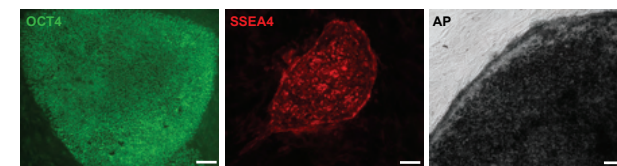


## WIBR3\_SNCA\_A30P\_F12-1

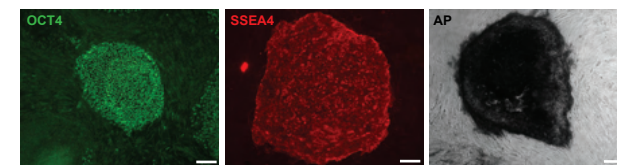


**C**

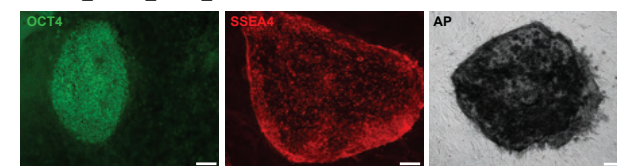
## WIBR3\_SNCA\_A53T\_1



## WIBR3\_SNCA\_A53T\_2

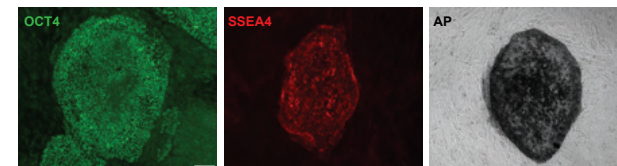


## WIBR3\_SNCA\_A53T\_4

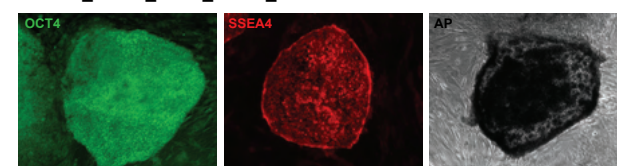


**F**

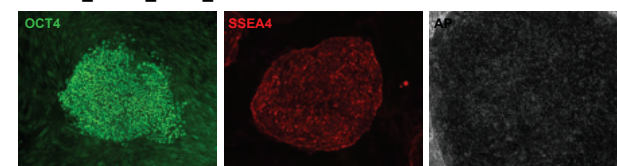
## WIBR3\_SNCA\_A30P\_A2-3



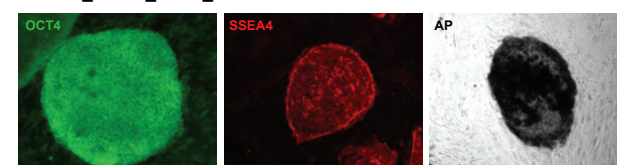
## WIBR3\_SNCA\_A30P\_Homo\_C8-2



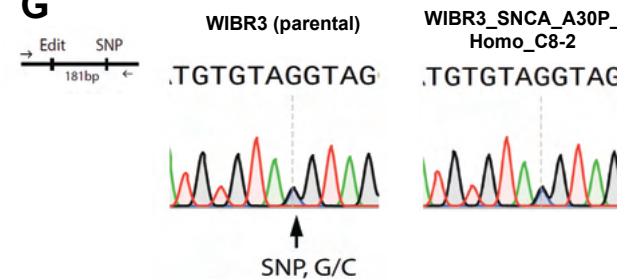
## WIBR3\_SNCA\_A30P\_E1-3



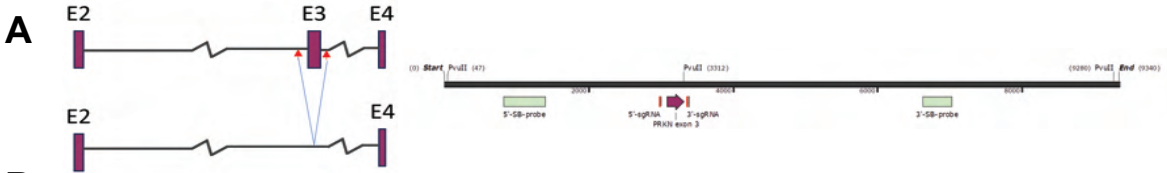
## WIBR3\_SNCA\_A30P\_F12-1



**G**



# Supplemental Figure 8, PRKN, Busquets et al.



**B**

## WIBR3\_PRKN\_X3DEL\_B1-3

T T T T G C T T C C C T T C T A C C A C G C A T G G A G C A T G G C C T C A C C -Reference  
 sgRNA

T T T T G C T T C C C T T C T A C C A C | G C A T G G A G C A T G G C C T C A C C -98.85% (1376 reads)

## WIBR3\_PRKN\_X3DEL\_F2-5

T T T T G C T T C C C T T C T A C C A C G C A T G G A G C A T G G C C T C A C C -Reference  
 sgRNA

T T T T G C T T C C C T T C T A C C A C T | G C A T G G A G C A T G G C C T C A C C -50.75% (3522 reads)  
 T T T T G C T T C C C T T C T A C C A C | T G C A T G G A G C A T G G C C T C A C -47.95% (3328 reads)

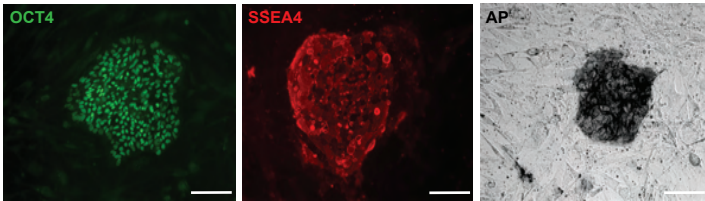
## WIBR3\_PRKN\_X3DEL\_H2-2

T T T T G C T T C C C T T C T A C C A C G C A T G G A G C A T G G C C T C A C C -Reference  
 sgRNA

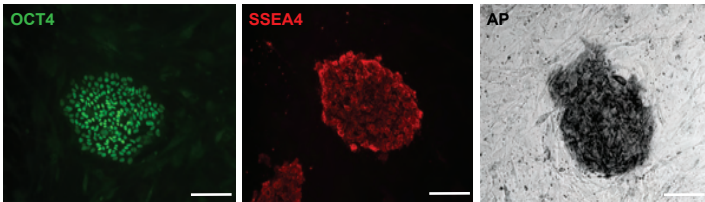
T T T T G C T T C C C T T C T A C C A C | G C A T G G A G C A T G G C C T C A C C -50.25% (7891 reads)  
 T T T T G C T T C C C T T C T A C C A C | T G C A T G G A G C A T G G C C T C A C -48.33% (7591 reads)

**C**

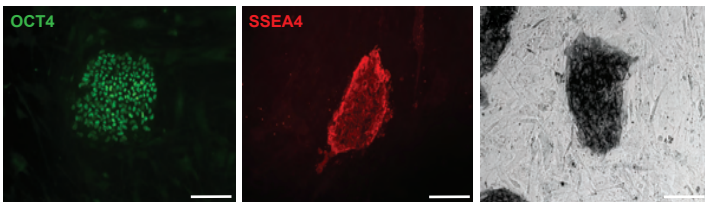
## WIBR3\_PRKN\_X3DEL\_B1-3



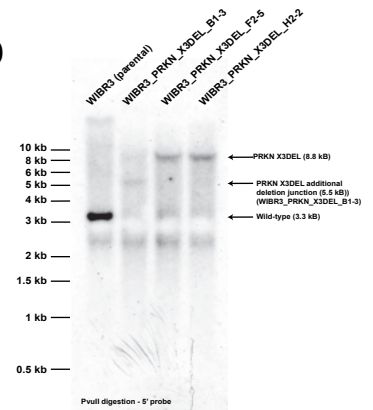
## WIBR3\_PRKN\_X3DEL\_F2-5



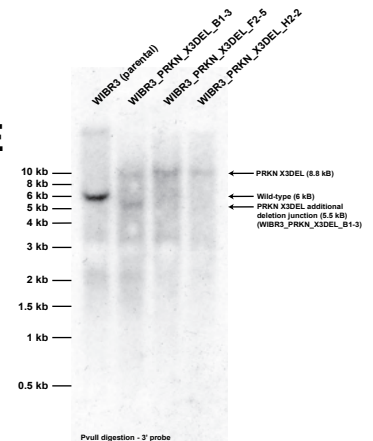
## WIBR3\_PRKN\_X3DEL\_B1-3



**D**



**E**



**F**

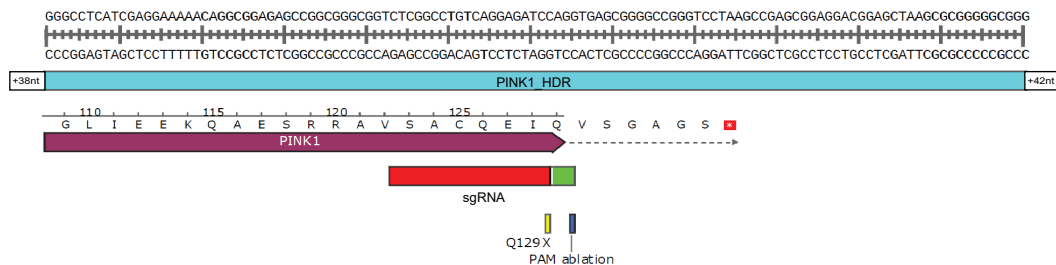
## Deletion junction in clone WIBR3\_PRKN\_X3DEL\_B1-3

G G C A A C A G A A G A G C T T G A G A A A G C A G C A G G G A A G G G C A T C A T T C A T C T T T T A T G A G A A T G -Reference  
 G G C A A C A G A A G A G C T T G A G A A A G C A G C A G G G A A G G G C A T C A T T C A T C T T T T A T G A G A A T G -90.29% (3440 reads)



# Supplemental Figure 9. PINK1, Busquets et al.

## A



## B

### WIBR3\_PINK1\_Q129X\_C4-1

T G T C A G G A G A T C C A G G T G A G - Reference  
 sgRNA  
 T G T C A G G A G A | T C T A G C T G A G - 95.86% (671 reads)

### WIBR3\_PINK1\_Q129X\_E2-2

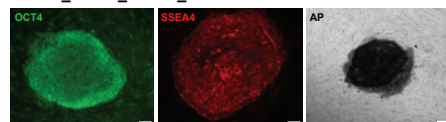
T G T C A G G A G A T C C A G G T G A G - Reference  
 sgRNA  
 T G T C A G G A G A | T C T A G C T G A G - 96.48% (741 reads)

### WIBR3\_PINK1\_Q129X\_E7-1

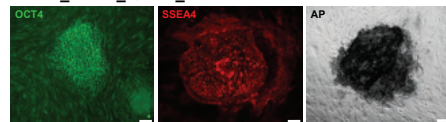
T G T C A G G A G A T C C A G G T G A G - Reference  
 sgRNA  
 T G T C A G G A G A | T C T A G C T G A G - 98.28% (572 reads)

## C

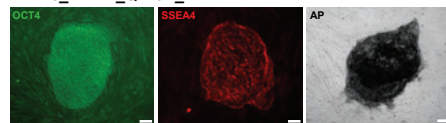
### WIBR3\_PINK1\_Q129X\_C4-1



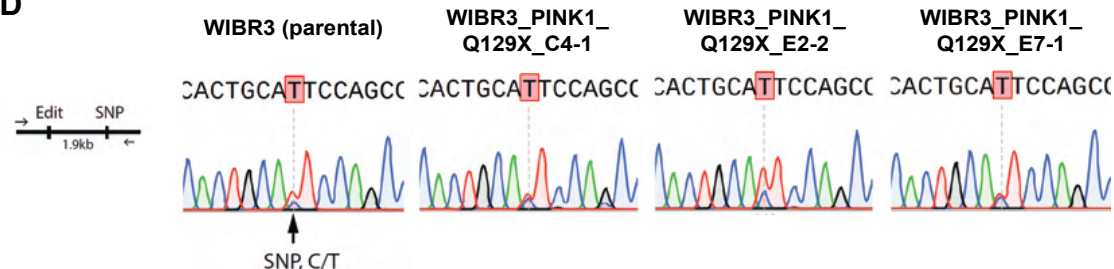
### WIBR3\_PINK1\_Q129X\_E2-2



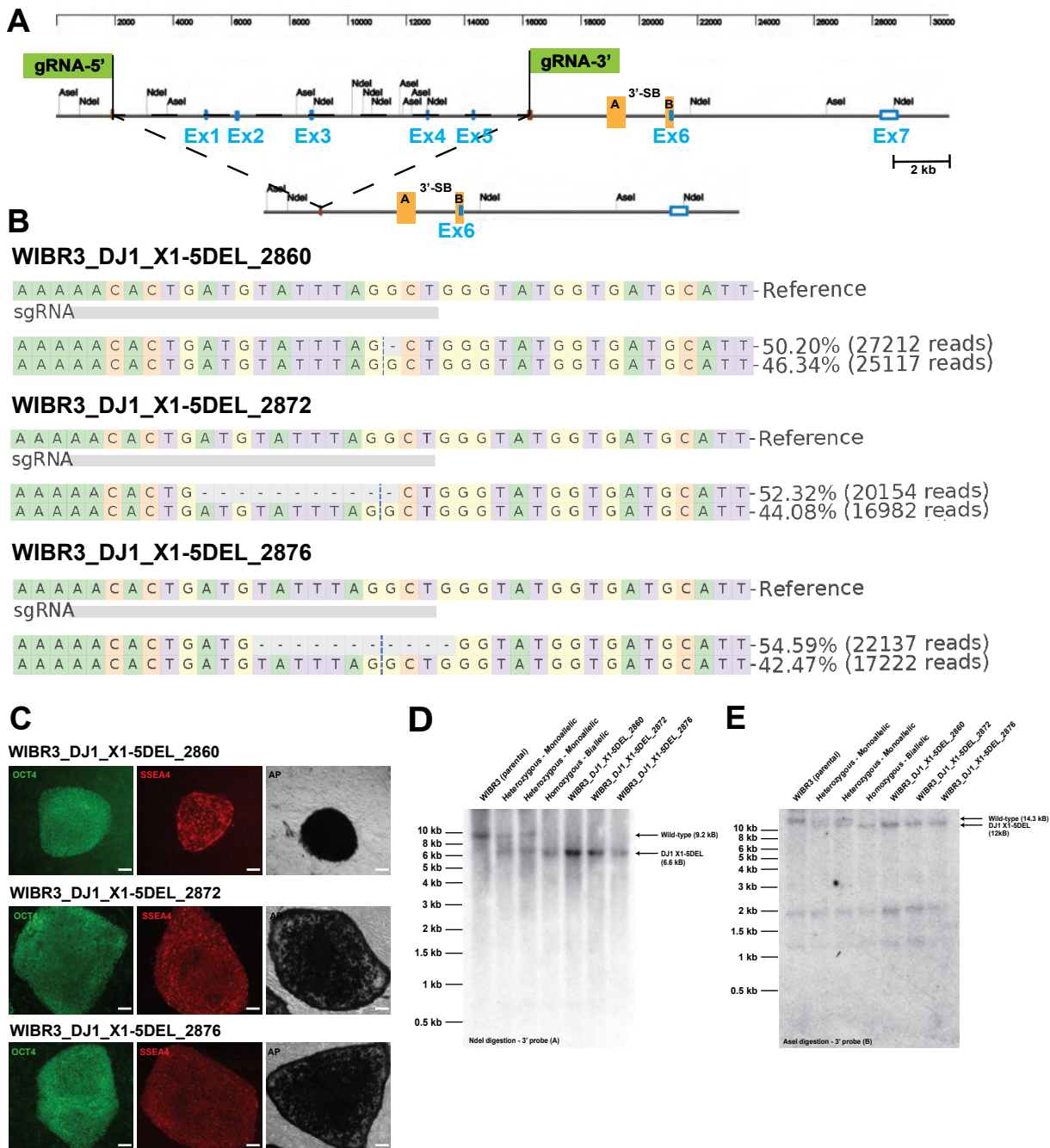
### WIBR3\_PINK1\_Q129X\_C4-1



## D

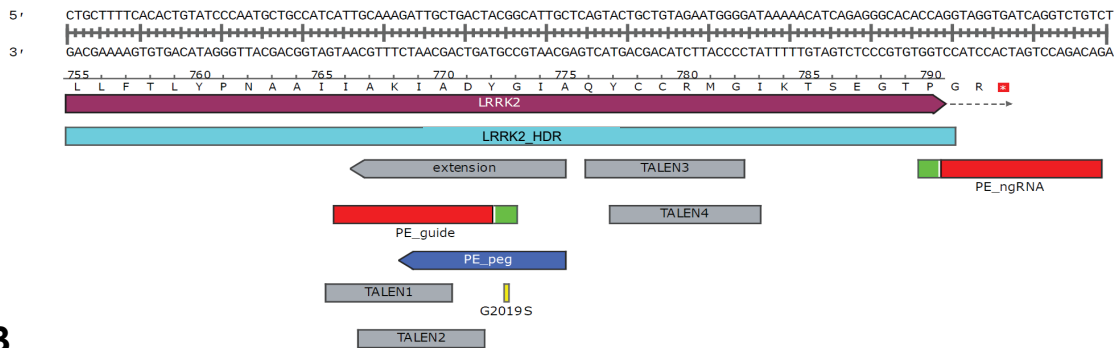


# Supplemental Figure 10, DJ1. Busquets et al.



# Supplemental Figure 11. LRRK2, Busquets et al.

**A**



**B**

## WIBR3\_LRRK2\_G2019S\_5\_Het

A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-Reference  
 sgRNA

A G T A C T G A G C A A T G C T G T A G T C A G C A A T C T T T G C A A T G A T-49.74% (9261 reads)  
 A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-45.92% (8550 reads)

## WIBR3\_LRRK2\_G2019S\_6\_Het

A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-Reference  
 sgRNA

A G T A C T G A G C A A T G C T G T A G T C A G C A A T C T T T G C A A T G A T-49.19% (9607 reads)  
 A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-46.62% (9105 reads)

## WIBR3\_LRRK2\_G2019S\_65\_Homo

A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-Reference  
 sgRNA

A G T A C T G A G C A A T G C T G T A G T C A G C A A T C T T T G C A A T G A T-95.45% (23624 reads)

## WIBR3\_LRRK2\_G2019S\_216\_Het

A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-Reference  
 sgRNA

A G T A C T G A G C A A T G C T G T A G T C A G C A A T C T T T G C A A T G A T-50.30% (8240 reads)  
 A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-44.99% (7370 reads)

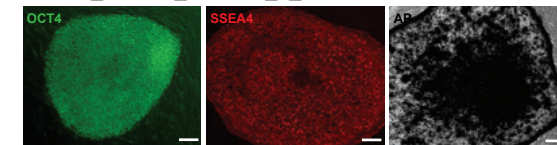
## WIBR3\_LRRK2\_G2019S\_2093\_Het

A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-Reference  
 sgRNA

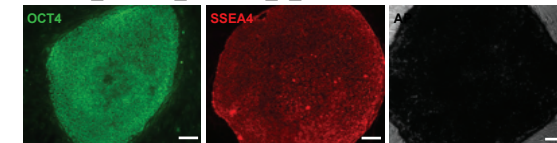
A G T A C T G A G C A A T G C T G T A G T C A G C A A T C T T T G C A A T G A T-49.14% (10670 reads)  
 A G T A C T G A G C A A T G C C G T A G T C A G C A A T C T T T G C A A T G A T-46.14% (10017 reads)

**C**

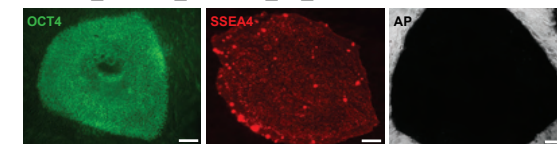
## WIBR3\_LRRK2\_G2019S\_5\_Het



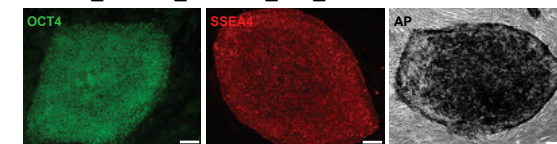
## WIBR3\_LRRK2\_G2019S\_6\_Het



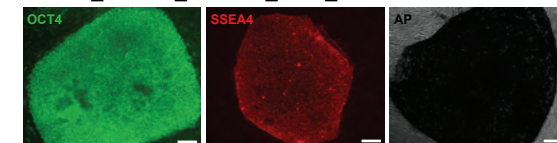
## WIBR3\_LRRK2\_G2019S\_65\_Homo



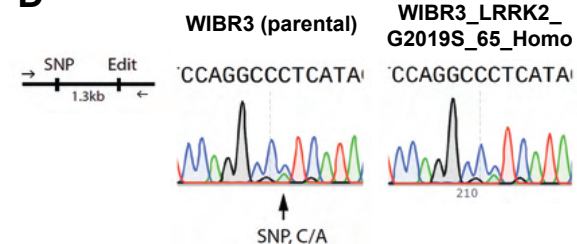
## WIBR3\_LRRK2\_G2019S\_216\_Het



## WIBR3\_LRRK2\_G2019S\_2093\_Het

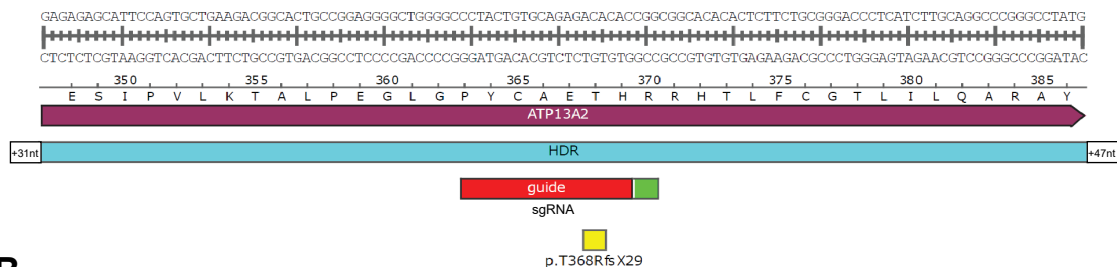


**D**



# Supplemental Figure 12. ATP13A2, Busquets et al.

## A



## B

### WIBR3\_ATP13A2\_FS\_Homo\_2\_5

CCTACTGTGCAGAGACACACCGGGCGGGCACACACTCTTTCTG-Reference  
 sgRNA  
 CTACTGTGCAGAGACA[A]CAC|CGGGCGGGCACACACTCTTTCTG-97.77% (10012 reads)

### WIBR3\_ATP13A2\_FS\_5\_6

CCTACTGTGCAGAGACACACCGGGCGGGCACACACTCTTTCTG-Reference  
 sgRNA  
 CCTACTGTGCAGAGACAC - - |CGGGCGGGCACACACTCTTTCTG-50.64% (5395 reads)  
 TACTGTGCAGAGAG[A]CACAC|CGGGCGGGCACACACTCTTTCTG-46.78% (4984 reads)

### WIBR3\_ATP13A2\_FS\_Homo\_6\_1

CCTACTGTGCAGAGACACACCGGGCGGGCACACACTCTTTCTG-Reference  
 sgRNA  
 TACTGTGCAGAGAG[A]CACAC|CGGGCGGGCACACACTCTTTCTG-97.82% (10070 reads)

### WIBR3\_ATP13A2\_FS\_Homo\_12\_2

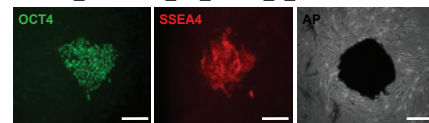
CCTACTGTGCAGAGACACACCGGGCGGGCACACACTCTTTCTG-Reference  
 sgRNA  
 CTACTGTGCAGAGACA[A]CAC|CGGGCGGGCACACACTCTTTCTG-97.74% (9557 reads)

### WIBR3\_ATP13A2\_FS\_Homo\_12\_6

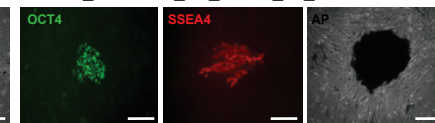
CCTACTGTGCAGAGACACACCGGGCGGGCACACACTCTTTCTG-Reference  
 sgRNA  
 CCTACTGTGCAGAGAC - CAC|CGGGCGGGCACACACTCTTTCTG-97.86% (10122 reads)

## C

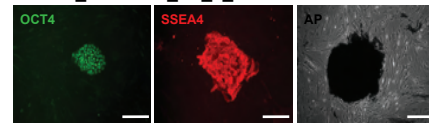
### WIBR3\_ATP13A2\_FS\_Homo\_2\_5



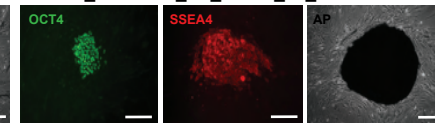
### WIBR3\_ATP13A2\_FS\_Homo\_12\_2



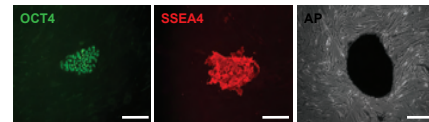
### WIBR3\_ATP13A2\_FS\_5\_6



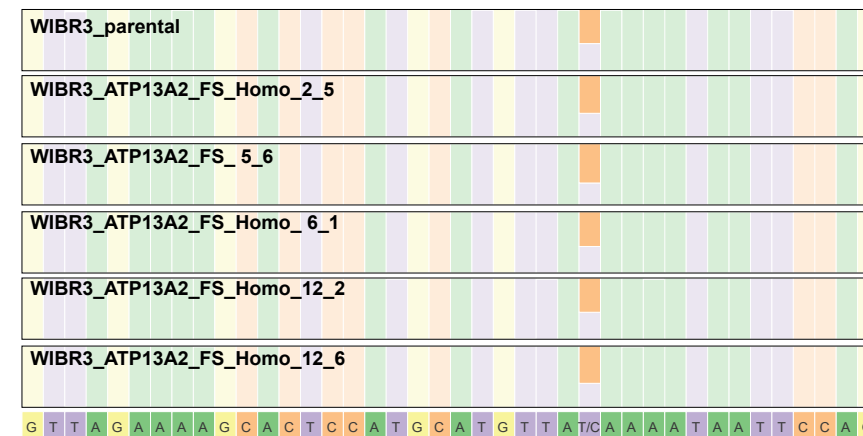
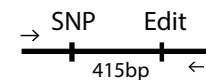
### WIBR3\_ATP13A2\_FS\_Homo\_12\_6



### WIBR3\_ATP13A2\_FS\_Homo\_6\_1

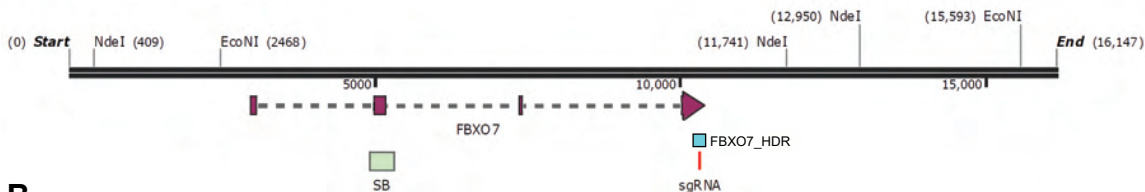


## D



# Supplemental Figure 13. FBXO7, Busquets et al.

**A**



**B**

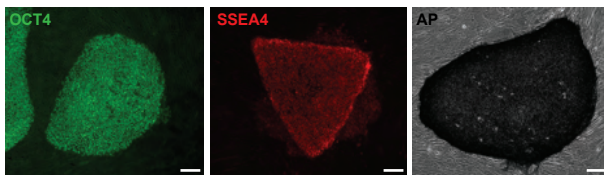
## WIBR3\_FBXO7\_FS\_A3-1

C C T A A C C C C A T C T T T G C C A G G G C G A G G C G G C C C C A A T G A C A -Reference  
 sgRNA

C C T A A C C C C A T C T T T G C C A G G G - C G A G G C G G C C C C A A T G A C A -97.52% (9296 reads)

**C**

## WIBR3\_FBXO7\_FS\_A3-1



**F**

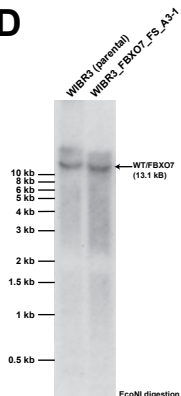
WIBR3 (parental)

WIBR3\_FBXO7\_FS\_A3-1

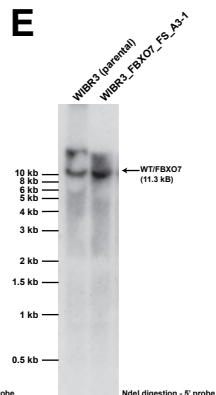
→ SNP Edit  
 ← 415bp ←



**D**

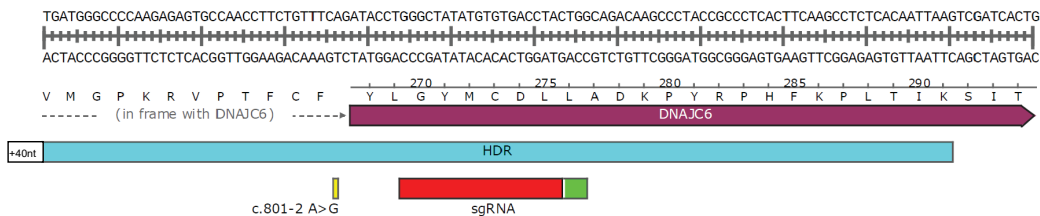


**E**



# Supplemental Figure 14. DNAJC6, Busquets et al.

## A



## B

### WIBR3\_DNAJC6\_c.801-2 A>G+FS/FS\_G12-2

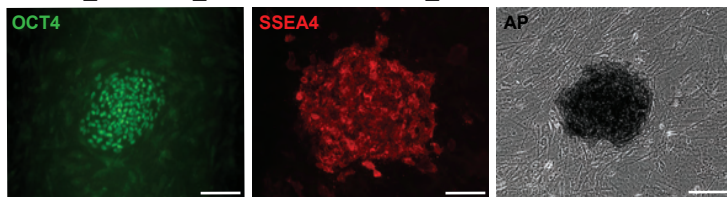


### WIBR3\_DNAJC6\_FS/FS\_H10-1

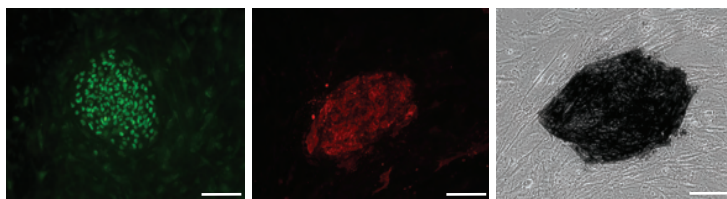


## C

### WIBR3\_DNAJC6\_c.801-2 A>G+FS/FS\_G12-2

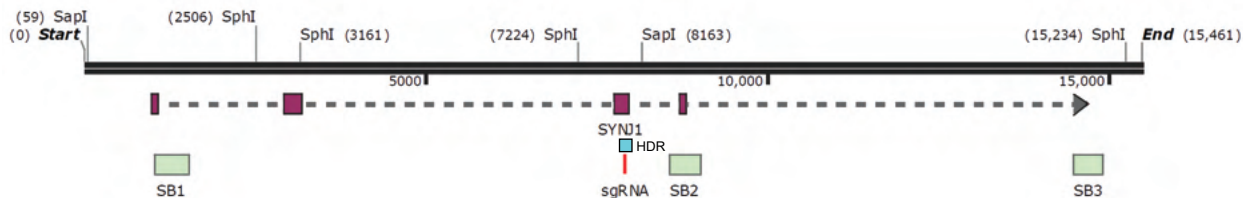


### WIBR3\_DNAJC6\_FS/FS\_H10-1



# Supplemental Figure 15. SYNJ1, Busquets et al.

## A



## B

### WIBR3\_SYNJ1\_R258Q\_Homo\_A5-1

G A G C T G G G A C C A G G T T T A A T G T C C G G G G A A C A A A T G A T G A -Reference

sgRNA

G A G C T G G G A C C A G G T T T A A T G T C C A G G G A A C A A A T G A T G A -96.73% (24738 reads)

### WIBR3\_SYNJ1\_R258Q/FS\_E4-1

G A G C T G G G A C C A G G T T T A A T G T C C G G G G A A C A A A T G A T G A -Reference

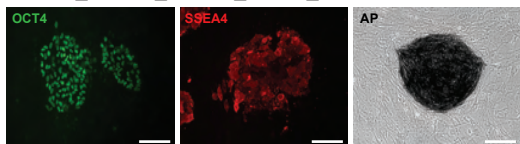
sgRNA

G A G C T G G G A C C A G G T T T A A T G T C C A G G G A A C A A A T G A T G A -51.66% (11370 reads)

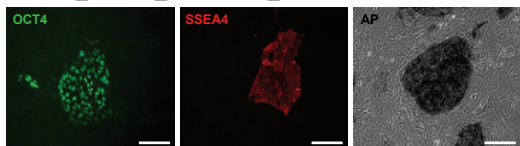
G A G C T G G G A C C A G G T T T A A T T G T C C G G G G A A C A A A T G A T G -44.74% (9847 reads)

## C

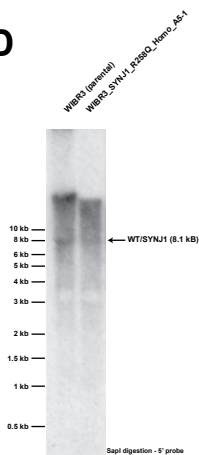
### WIBR3\_SYNJ1\_R258Q\_Homo\_A5-1



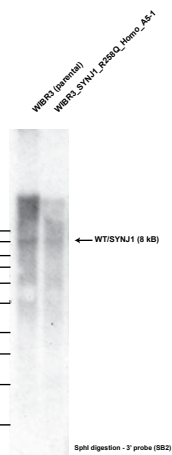
### WIBR3\_SYNJ1\_R258Q/FS\_E4-1



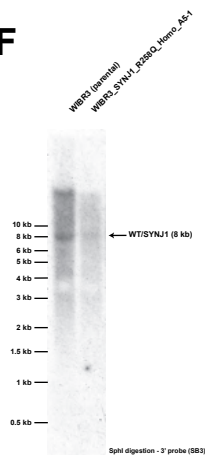
## D



## E

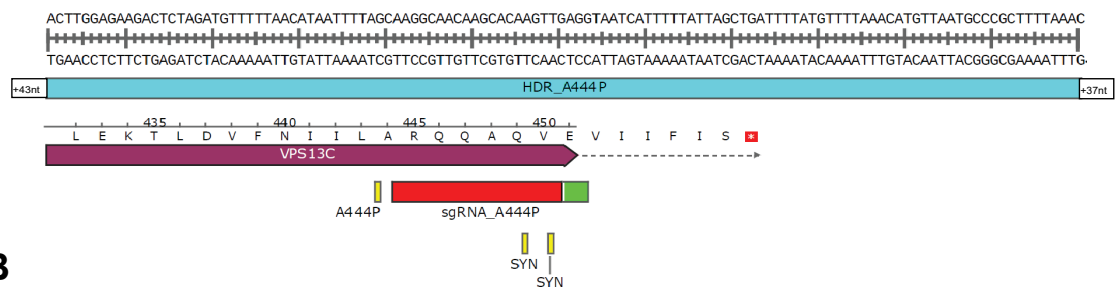


## F



## Supplemental Figure 16. VPS13c, Busquets et al.

**A**

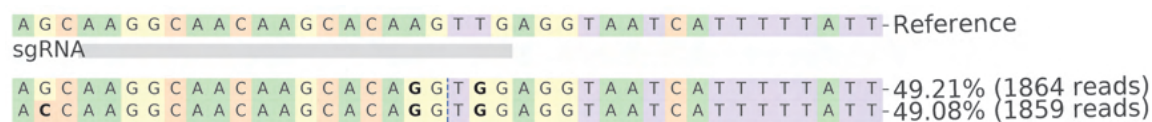


**B**

### WIBR3\_VPS13C\_A444P\_Homo\_C8-2



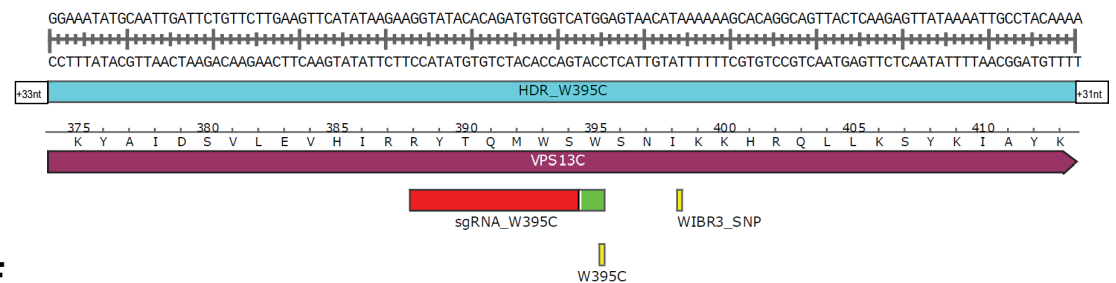
### WIBR3\_VPS13C\_A444P\_Het\_E12-1



### WIBR3\_VPS13C\_FS\_Homo\_H3-1



**E**



**F**

### WIBR3\_VPS13C\_W395C\_Homo\_C3-1



### WIBR3\_VPS13C\_W395C\_Homo\_C6-2



### WIBR3\_VPS13C\_W395C\_Homo\_C11-3

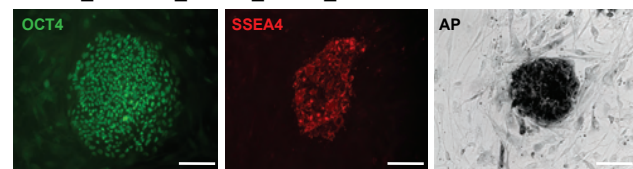


### WIBR3\_VPS13C\_FS\_Homo\_E10-2

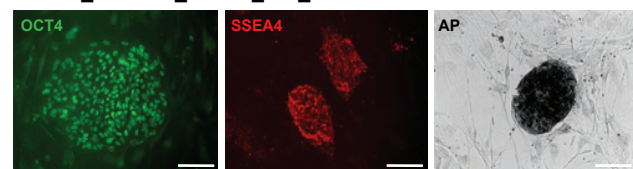


**C**

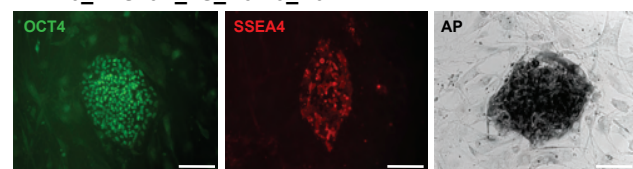
### WIBR3\_VPS13C\_A444P\_Homo\_C8-2



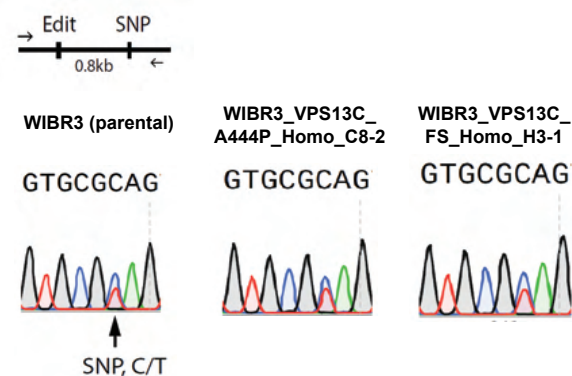
### WIBR3\_VPS13C\_A444P\_Het\_E12-1



### WIBR3\_VPS13C\_FS\_Homo\_H3-1

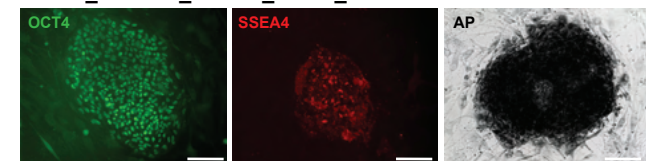


**D**

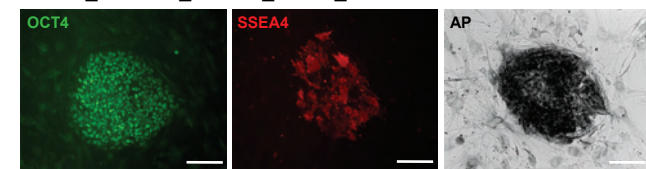


**G**

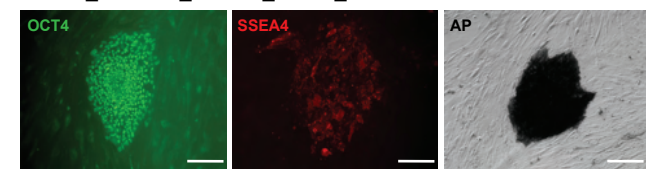
### WIBR3\_VPS13C\_W395C\_Homo\_C3-1



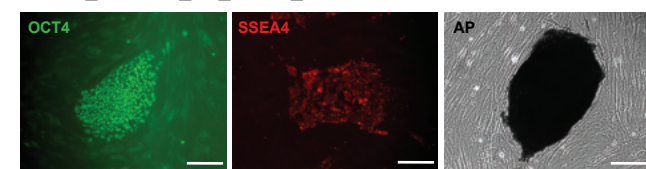
### WIBR3\_VPS13C\_W395C\_Homo\_C6-2



### WIBR3\_VPS13C\_W395C\_Homo\_C11-3



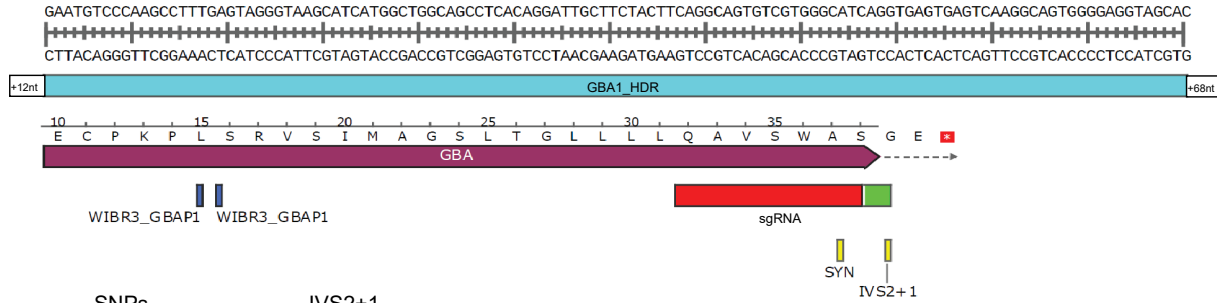
### WIBR3\_VPS13C\_FS\_Homo\_E10-2





# Supplemental Figure 17. GBA, Busquets et al.

**A**



**B**

SNPs                      IVS2+1

CTTTGAGTA-89bp-GCATCAGGTTG GBA1, WT

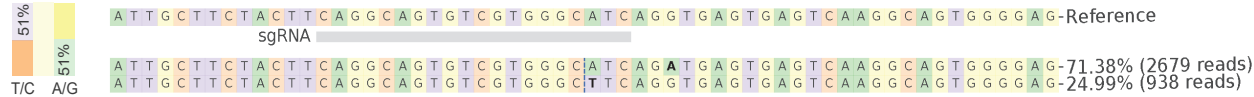
CTTCGGGTA-89bp-GCATCAGATTG GBAP1

CTTTGAGTA-89bp-GCATCAGATTG GBA1, IVS2+1, G>A

CTTTGAGTA-89bp-GCTTCAGGTTG GBA1, A37=

**C**

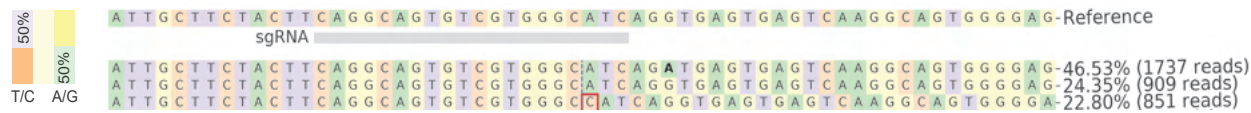
## WIBR3\_GBA1\_IVS2\_Het\_3C3I



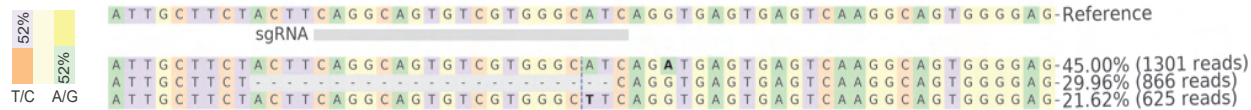
## WIBR3\_GBA1\_IVS2\_Het\_3C4B



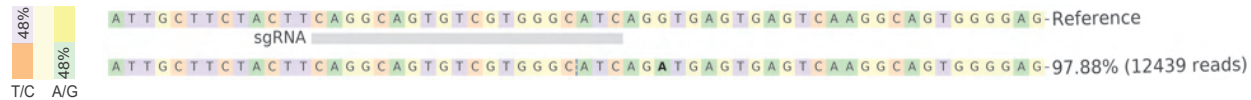
## WIBR3\_GBA1\_FS\_Het\_10C2F



## WIBR3\_GBA1\_FS\_Het\_10D11A



## WIBR3\_GBA1\_IVS2\_E10B



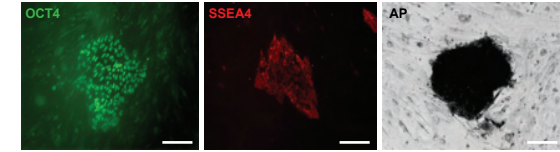
## WIBR3\_GBA1\_IVS2\_G2E



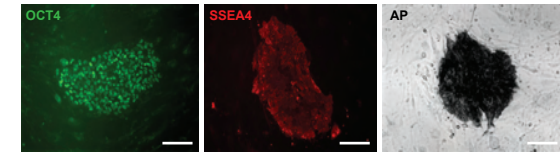
A C G T

**D**

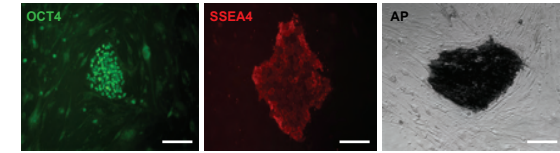
## WIBR3\_GBA1\_IVS2\_Het\_3C3I



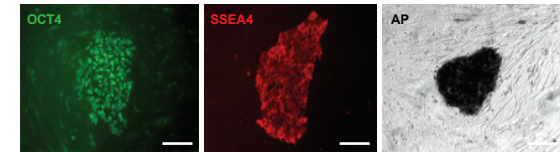
## WIBR3\_GBA1\_IVS2\_Het\_3C4B



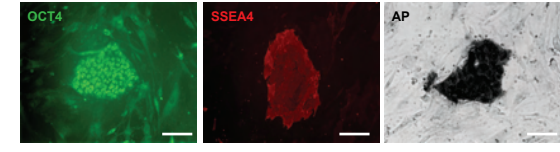
## WIBR3\_GBA1\_FS\_Het\_10C2F



## WIBR3\_GBA1\_FS\_Het\_10D11A



## WIBR3\_GBA1\_IVS2\_E10B



## WIBR3\_GBA1\_IVS2\_G2E

