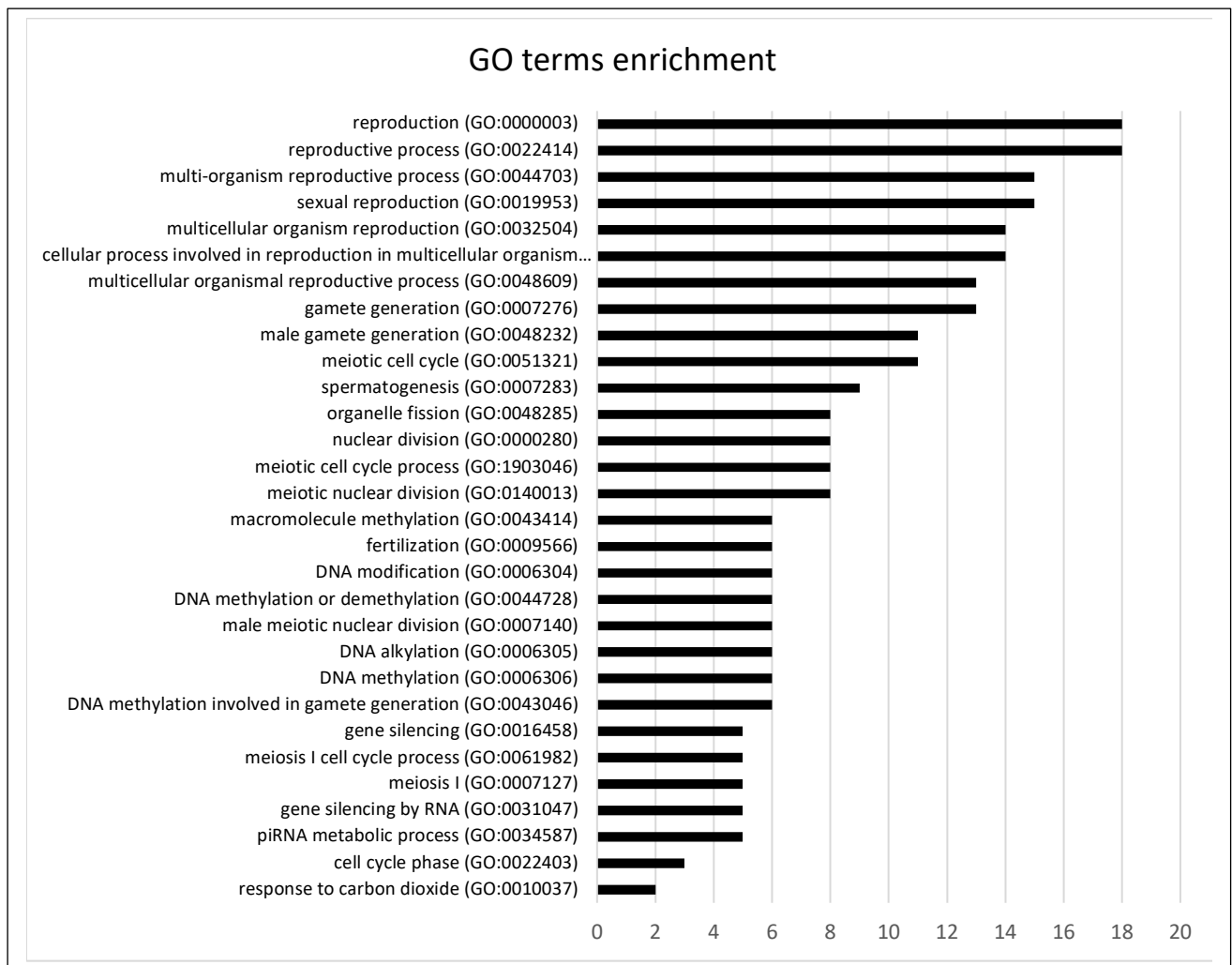
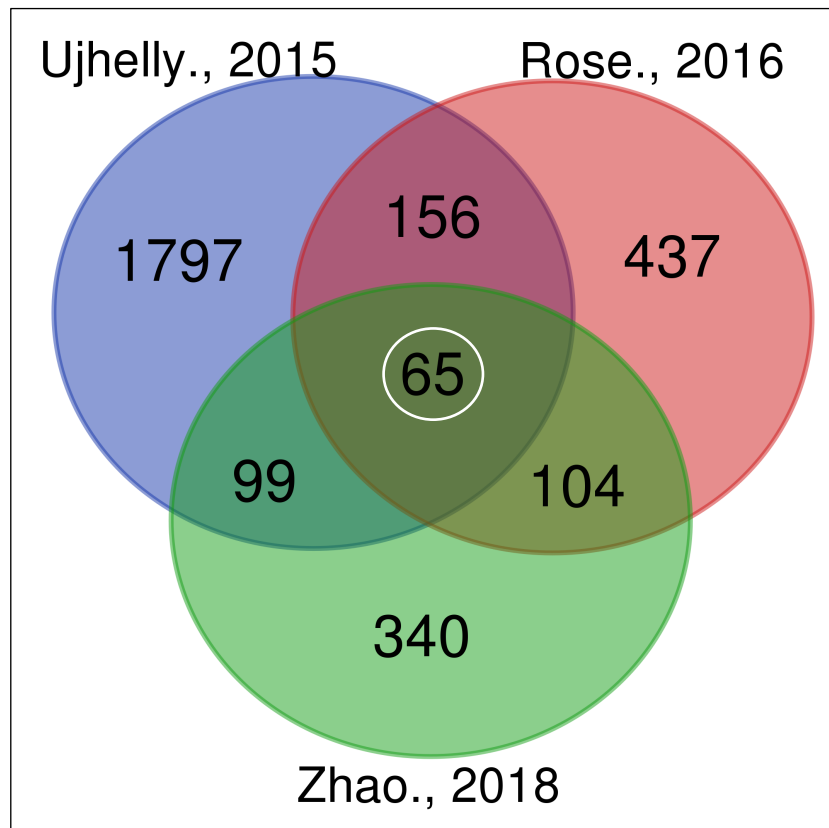


Supplementary data 1:

List of 65 commonly upregulated genes from the three *Rybp* transcriptome available from ES cells sources- (Ujhelly et al., 2015, Rose et al., 2016 and Zhao et al., 2018). The genes are listed in the descending order of their log2foldchange values as per Ujhelly et al., 2015.

- | | |
|--------------------------|--------------------|
| 1. <i>Calb2</i> | 34. <i>Cdh4</i> |
| 2. <i>Slc25a31</i> | 35. <i>Bsn</i> |
| 3. <i>Stk31</i> | 36. <i>Ky</i> |
| 4. <i>Adcy7</i> | 37. <i>Hpcal4</i> |
| 5. <i>Syce1</i> | 38. <i>Tns1</i> |
| 6. <i>Chrna4</i> | 39. <i>Car6</i> |
| 7. <i>Ctcf1</i> | 40. <i>Ddr2</i> |
| 8. <i>Aox3</i> | 41. <i>Atp2b4</i> |
| 9. <i>1700016K19Rik</i> | 42. <i>Ddx4</i> |
| 10. <i>Nxf2</i> | 43. <i>Tdrkh</i> |
| 11. <i>Gatm</i> | 44. <i>Trpa1</i> |
| 12. <i>4930502E18Rik</i> | 45. <i>Brdt</i> |
| 13. <i>Dmrtb1</i> | 46. <i>Pramel1</i> |
| 14. <i>Sycp2</i> | 47. <i>Rcsd1</i> |
| 15. <i>Fam26f</i> | 48. <i>Ptpre</i> |
| 16. <i>Fbp2</i> | 49. <i>Piwil2</i> |
| 17. <i>Ildr2</i> | 50. <i>Boll</i> |
| 18. <i>Apba1</i> | 51. <i>Dram1</i> |
| 19. <i>Slc4a1</i> | 52. <i>Hsf5</i> |
| 20. <i>Myh13</i> | 53. <i>Crabp1</i> |
| 21. <i>Egfl6</i> | 54. <i>Rnf219</i> |
| 22. <i>Plekhg4</i> | 55. <i>Tex11</i> |
| 23. <i>Btn2a2</i> | 56. <i>Ido2</i> |
| 24. <i>Vav1</i> | 57. <i>Tex101</i> |
| 25. <i>Pogk</i> | 58. <i>Mlf1</i> |
| 26. <i>Cygb</i> | 59. <i>Tdrd1</i> |
| 27. <i>Rftn1</i> | 60. <i>Dgat2</i> |
| 28. <i>Mael</i> | 61. <i>Arsb</i> |
| 29. <i>Taf7l</i> | 62. <i>P2rx5</i> |
| 30. <i>Ikbke</i> | 63. <i>Sh2d4b</i> |
| 31. <i>Iqsec3</i> | 64. <i>Pde3a</i> |
| 32. <i>Dazl</i> | 65. <i>Scml4</i> |
| 33. <i>Tbx3</i> | |



Supplementary data 2:

Gene Ontology (GO) analysis of the 65 commonly upregulated genes identified with germ cell, meiotic and spermatogenic functions.

Germ cell-

1. *Tex11*
2. *Syce1*
3. *Mael*
4. *Atp2b4*
5. *Tdrkh*
6. *Boll*
7. *Piwil2*
8. *1700016K19Rik*
9. *Brdt*
10. *Tex101*
11. *Pde3a*
12. *Ctcf1*
13. *Tbx3*
14. *Tdrd1*
15. *Taf7l*
16. *Ddx4*
17. *Sycp2*
18. *Dazl*

Meiotic-

1. *Tex11*
2. *Syce1*
3. *Mael*
4. *Tdrkh*
5. *Boll*
6. *Piwil2*
7. *Brdt*
8. *Tdrd1*
9. *Ddx4*
10. *Sycp2*
11. *Dazl*

Spermatogenesis-

1. *Mael*
2. *Tdrkh*
3. *Boll*
4. *Piwil2*
5. *Brdt*
6. *Tdrd1*
7. *Taf7l*
8. *Ddx4*
9. *Dazl*

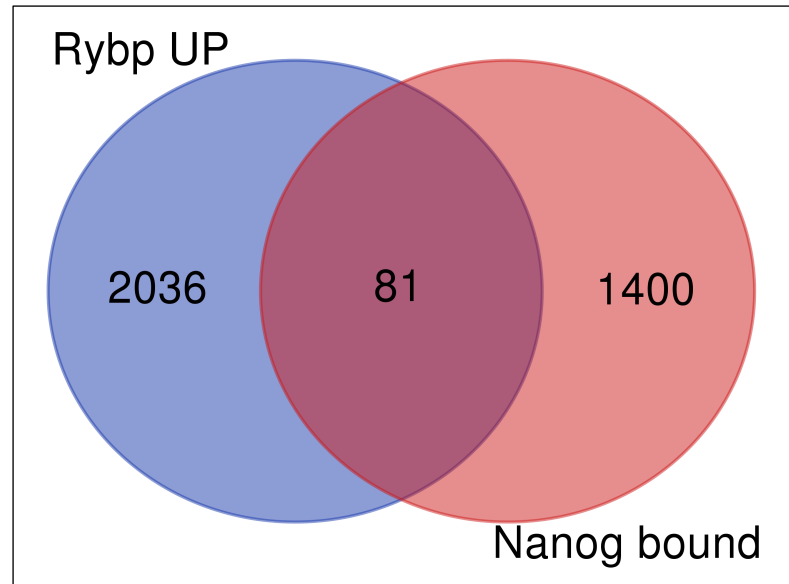
Supplementary data 3:

Common target analysis

Finding common genes amongst the 2117 significantly (more than 2-fold) upregulated genes in *Rybp*^{-/-} mouse ES cells (Ujhelly et al., 2015) and 1481 NANOG bound genes in human ES cells (Boyer et al., 2005)

List of 81 common hits

1. *Tsnaxip1*
2. *Tle2*
3. *Ppp1r12b*
4. *Slc30a1*
5. *Ascl2*
6. *Sfrp1*
7. *Rab17*
8. *Igfbp3*
9. *Mmp9*
10. *Hoxc4*
11. *Irx2*
12. *Nadsyn1*
13. *Hectd2*
14. *Pxmp3*
15. *Cyp2r1*
16. *Zcchc12*
17. *Dmrt1*
18. *Polr3d*
19. *Csad*
20. *Rgs9*
21. *Ly96*
22. *Susd1*
23. *Anxa8*
24. *Fam54a*
25. *Tmem38a*
26. *Amigo2*
27. *Naalad2*
28. *Rgs20*
29. *Adamts1*
30. *Prnp*
31. *Cerkl*
32. *Apoa2*
33. *Pbx1*
34. *Kbtbd10*
35. *Serpinh1*



36. *Ddx49*
37. *Slc13a4*
38. *Hoxd1*
39. *Kif9*
40. *Pde10a*
41. *Epm2aip1*
42. *Casp9*
43. *Olfml3*
44. *Calcr1*
45. *Pax3*
46. *Pmaip1*
47. *Sfi1*
48. *Eomes*
49. *Nr3c2*
50. *Phyhip*
51. *Klhl5*
52. *Tmc1*
53. *Rnf17*
54. *Psen2*
55. *Hoxb9*
56. *Rbm24*
57. *Lrp3*
58. *Lhx2*

59. *Usf1*
60. *Gad2*
61. *Ier5l*
62. *Gga1*
63. *Cttnbp2*
64. *Spaca1*
65. *Rgs10*
66. *Chrne*
67. *Kcnn2*
68. *Ppp1r16b*
69. *Fkbp7*
70. *Bmp7*
71. *Tpcn2*
72. *Hesx1*
73. *Asb1*
74. *Gng12*
75. *Pygm*
76. *Igfbp2*
77. *Rab38*
78. *Hist1h3i*
79. *C1qtnf6*
80. *Lhpp*
81. *Pik3r2*