**File S3. Python script for *gas-1* interactome SNP simulations reported in Figure S5.**

#!/usr/bin/env python2.7

import re

import sys

import math

f1= open(sys.argv[1], "r")

out1= open("Output\_Interactome", "w")

f1.readline()

genedict = dict()

subdict= dict()

for line in f1:

 newline= line.strip().split("\t")

 #print len(newline)

 R07E4\_1 = newline[0]

 C04E12\_10 = newline[1]

 daf2 = newline[2]

 rheb1 = newline[3]

 sel2 = newline[4]

 gas1 = newline[5]

 nuc\_enc = newline[6]

 if R07E4\_1 != '@':

 #print R07E4\_1

 str\_line = str("R07E4\_1")

 if(genedict.has\_key(R07E4\_1)):

 subdict= genedict[R07E4\_1]

 if(subdict.has\_key(str\_line)):

 subdict[str\_line] += 1

 else:

 subdict[str\_line] = 1

 else:

 genedict[R07E4\_1] = dict()

 genedict[R07E4\_1][str\_line] = 1

 if C04E12\_10 != '@':

 #print C04E12\_10

 str\_line = str("C04E12\_10")

 if(genedict.has\_key(C04E12\_10)):

 subdict= genedict[C04E12\_10]

 if(subdict.has\_key(str\_line)):

 subdict[str\_line] += 1

 else:

 subdict[str\_line] = 1

 else:

 genedict[C04E12\_10] = dict()

 genedict[C04E12\_10][str\_line] = 1

 if daf2 != '@':

 #print daf2

 str\_line = str("daf2")

 if(genedict.has\_key(daf2)):

 subdict= genedict[daf2]

 if(subdict.has\_key(str\_line)):

 subdict[str\_line] += 1

 else:

 subdict[str\_line] = 1

 else:

 genedict[daf2] = dict()

 genedict[daf2][str\_line] = 1

 if rheb1 != '@':

 #print rheb1

 str\_line = str("rheb1")

 if(genedict.has\_key(rheb1)):

 subdict= genedict[rheb1]

 if(subdict.has\_key(str\_line)):

 subdict[str\_line] += 1

 else:

 subdict[str\_line] = 1

 else:

 genedict[rheb1] = dict()

 genedict[rheb1][str\_line] = 1

 if sel2 != '@':

 #print sel2

 str\_line = str("sel2")

 if(genedict.has\_key(sel2)):

 subdict= genedict[sel2]

 if(subdict.has\_key(str\_line)):

 subdict[str\_line] += 1

 else:

 subdict[str\_line] = 1

 else:

 genedict[sel2] = dict()

 genedict[sel2][str\_line] = 1

 if gas1 != '@':

 #print gas1

 str\_line = str("gas1")

 if(genedict.has\_key(gas1)):

 subdict= genedict[gas1]

 if(subdict.has\_key(str\_line)):

 subdict[str\_line] += 1

 else:

 subdict[str\_line] = 1

 else:

 genedict[gas1] = dict()

 genedict[gas1][str\_line] = 1

 if nuc\_enc != '@':

 #print nuc\_enc

 str\_line = str("nuc\_enc")

 if(genedict.has\_key(nuc\_enc)):

 subdict= genedict[nuc\_enc]

 if(subdict.has\_key(str\_line)):

 subdict[str\_line] += 1

 else:

 subdict[str\_line] = 1

 else:

 genedict[nuc\_enc] = dict()

 genedict[nuc\_enc][str\_line] = 1

key\_list = genedict.keys()

#print key\_list

values\_list = genedict.values()

#print values\_list

for key in key\_list:

 out\_str= str(key) + str(genedict[key]) + str("\n")

 out1.writelines(out\_str)

f1.close()

out1.close()