

# A Boolean model of the proliferative role of the lncRNA XIST in non-small cell lung cancer cells

## Data File S1

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## Code of the model in .ginml file format used for the GINsim 3.0.0b software.

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <!DOCTYPE gxl SYSTEM "http://gin.univ-mrs.fr/GINsim/GINML_2.1.dtd">
3 <gxl>
4 <graph id="defaultID" class="regulatory" nodeorder="DNA_Damage ATM Mdm2 p53 Wip1 p53_A p53_K
  miR_34a miR_16 miR_449a lnc_XIST p21 p53INP1 c_Myc YY1 C_Met Cdc25A CDK46_CycD
  CDK2_CycE RB E2F1 Sirt_1 HDAC1 BMI1 PUMA BCL2 BAX Caspase3 Poliferation Senescence
  Apoptosis">
5 <node id="DNA_Damage" maxvalue="1">
6 <parameter val="1" idActiveInteractions="DNA_Damage:DNA_Damage:1"/>
7 <annotation>
8 <comment>DNA_Damage is an input node marked with an auto-regulation.</comment>
9 </annotation>
10 </node>
11 <node id="ATM" maxvalue="1">
12 <parameter val="1" idActiveInteractions="DNA_Damage:ATM:1"/>
13 <parameter val="1" idActiveInteractions="DNA_Damage:ATM:1 HDAC1:ATM:1"/>
14 <parameter val="1" idActiveInteractions="DNA_Damage:ATM:1 E2F1:ATM:1"/>
15 <parameter val="1" idActiveInteractions="DNA_Damage:ATM:1 E2F1:ATM:1 HDAC1:ATM:1"/>
16 <parameter val="1" idActiveInteractions="DNA_Damage:ATM:1 Wip1:ATM:1"/>
17 <parameter val="1" idActiveInteractions="DNA_Damage:ATM:1 Wip1:ATM:1 E2F1:ATM:1"/>
18 <parameter val="1" idActiveInteractions="DNA_Damage:ATM:1 Wip1:ATM:1 E2F1:ATM:1
  HDAC1:ATM:1"/>
19 </node>
20 <node id="Mdm2" maxvalue="1">
21 <parameter val="1"/>
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23 <parameter val="1" idActiveInteractions="Wip1:Mdm2:1 YY1:Mdm2:1"/>
24 <parameter val="1" idActiveInteractions="p53:Mdm2:1"/>
25 <parameter val="1" idActiveInteractions="p53:Mdm2:1 YY1:Mdm2:1"/>
26 <parameter val="1" idActiveInteractions="p53:Mdm2:1 Wip1:Mdm2:1"/>
27 <parameter val="1" idActiveInteractions="p53:Mdm2:1 Wip1:Mdm2:1 YY1:Mdm2:1"/>
28 </node>
29 <node id="p53" maxvalue="1">
30 <parameter val="1"/>
31 <parameter val="1" idActiveInteractions="ATM:p53:1"/>
32 <parameter val="1" idActiveInteractions="ATM:p53:1 Sirt_1:p53:1"/>
33 </node>
34 <node id="Wip1" maxvalue="1">
35 <parameter val="1" idActiveInteractions="p53_A:Wip1:1"/>
36 </node>
37 <node id="p53_A" maxvalue="1">
38 <parameter val="1"/>
39 <parameter val="1" idActiveInteractions="p53:p53_A:1"/>
40 <parameter val="1" idActiveInteractions="p53:p53_A:1 p53INP1:p53_A:1"/>
41 </node>
42 <node id="p53_K" maxvalue="1">
43 <parameter val="1" idActiveInteractions="p53:p53_K:1"/>
44 <parameter val="1" idActiveInteractions="p53:p53_K:1 Sirt_1:p53_K:1"/>
45 <parameter val="1" idActiveInteractions="p53:p53_K:1 Wip1:p53_K:1"/>
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47 <node id="miR_34a" maxvalue="1">
48 <parameter val="1" idActiveInteractions="p53:miR_34a:1"/>
49 <parameter val="1" idActiveInteractions="ATM:miR_34a:1"/>
50 <parameter val="1" idActiveInteractions="ATM:miR_34a:1 p53:miR_34a:1"/>
51 </node>
52 <node id="miR_16" maxvalue="1">
53 <parameter val="1" idActiveInteractions="p53:miR_16:1"/>
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55     <parameter val="1" idActiveInteractions="ATM:miR_16:1 p53:miR_16:1"/>
56 </node>
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60 <node id="lnc_XIST" maxvalue="1">
61     <parameter val="1" idActiveInteractions="YY1:lnc_XIST:1"/>
62     <parameter val="1" idActiveInteractions="miR_449a:lnc_XIST:1 YY1:lnc_XIST:1"/>
63     <parameter val="1" idActiveInteractions="miR_16:lnc_XIST:1 YY1:lnc_XIST:1"/>
64     <parameter val="1" idActiveInteractions="miR_16:lnc_XIST:1 miR_449a:lnc_XIST:1
        YY1:lnc_XIST:1"/>
65     <parameter val="1" idActiveInteractions="miR_34a:lnc_XIST:1 YY1:lnc_XIST:1"/>
66     <parameter val="1" idActiveInteractions="miR_34a:lnc_XIST:1 miR_449a:lnc_XIST:1
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67     <parameter val="1" idActiveInteractions="miR_34a:lnc_XIST:1 miR_16:lnc_XIST:1
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73     <parameter val="1" idActiveInteractions="HDAC1:p21:1 BMI1:p21:1"/>
74     <parameter val="1" idActiveInteractions="YY1:p21:1"/>
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79     <parameter val="1" idActiveInteractions="c_Myc:p21:1 BMI1:p21:1"/>
80     <parameter val="1" idActiveInteractions="c_Myc:p21:1 HDAC1:p21:1"/>
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88     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 HDAC1:p21:1"/>
89     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 HDAC1:p21:1 BMI1:p21:1"/>
90     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 YY1:p21:1"/>
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93     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 YY1:p21:1 HDAC1:p21:1 BMI1:p21:1
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94     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 c_Myc:p21:1"/>
95     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 c_Myc:p21:1 BMI1:p21:1"/>
96     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 c_Myc:p21:1 HDAC1:p21:1"/>
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98     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 c_Myc:p21:1 YY1:p21:1"/>
99     <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 c_Myc:p21:1 YY1:p21:1 BMI1:p21:1
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100    <parameter val="1" idActiveInteractions="lnc_XIST:p21:1 c_Myc:p21:1 YY1:p21:1
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101    <parameter val="1" idActiveInteractions="p53_A:p21:1"/>
102    <parameter val="1" idActiveInteractions="p53_A:p21:1 Caspase3:p21:1"/>
103    <parameter val="1" idActiveInteractions="p53_A:p21:1 BMI1:p21:1"/>
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109 <parameter val="1" idActiveInteractions="p53_A:p21:1 YY1:p21:1"/>
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113 <parameter val="1" idActiveInteractions="p53_A:p21:1 YY1:p21:1 HDAC1:p21:1"/>
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117 <parameter val="1" idActiveInteractions="p53_A:p21:1 c_Myc:p21:1"/>
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133 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1"/>
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135 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 BMI1:p21:1"/>
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137 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 HDAC1:p21:1"/>
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153 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 c_Myc:p21:1
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154 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 c_Myc:p21:1
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156 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 c_Myc:p21:1
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157 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 c_Myc:p21:1
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159 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 c_Myc:p21:1
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164 <parameter val="1" idActiveInteractions="p53_A:p21:1 lnc_XIST:p21:1 c_Myc:p21:1
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165 </node>
166 <node id="p53INP1" maxvalue="1">
167   <parameter val="1" idActiveInteractions="p53_K:p53INP1:1"/>
168   <parameter val="1" idActiveInteractions="p53_A:p53INP1:1"/>
169   <parameter val="1" idActiveInteractions="p53_A:p53INP1:1 p53_K:p53INP1:1"/>
170 </node>
171 <node id="c_Myc" maxvalue="1">
172   <parameter val="1"/>
173   <parameter val="1" idActiveInteractions="E2F1:c_Myc:1"/>
174   <parameter val="1" idActiveInteractions="C_Met:c_Myc:1"/>
175   <parameter val="1" idActiveInteractions="C_Met:c_Myc:1 E2F1:c_Myc:1"/>
176   <parameter val="1" idActiveInteractions="miR_449a:c_Myc:1"/>
177   <parameter val="1" idActiveInteractions="miR_449a:c_Myc:1 E2F1:c_Myc:1"/>
178   <parameter val="1" idActiveInteractions="miR_449a:c_Myc:1 C_Met:c_Myc:1"/>
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180   <parameter val="1" idActiveInteractions="miR_34a:c_Myc:1"/>
181   <parameter val="1" idActiveInteractions="miR_34a:c_Myc:1 E2F1:c_Myc:1"/>
182   <parameter val="1" idActiveInteractions="miR_34a:c_Myc:1 C_Met:c_Myc:1"/>
183   <parameter val="1" idActiveInteractions="miR_34a:c_Myc:1 C_Met:c_Myc:1 E2F1:c_Myc:1"/>
184   <parameter val="1" idActiveInteractions="miR_34a:c_Myc:1 miR_449a:c_Myc:1 E2F1:c_Myc:1"/>
185   <parameter val="1" idActiveInteractions="miR_34a:c_Myc:1 miR_449a:c_Myc:1 C_Met:c_Myc:1"/>
186   <parameter val="1" idActiveInteractions="miR_34a:c_Myc:1 miR_449a:c_Myc:1 C_Met:c_Myc:1
      E2F1:c_Myc:1"/>
187 </node>
188 <node id="YY1" maxvalue="1">
189   <parameter val="1" idActiveInteractions="c_Myc:YY1:1"/>
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192 </node>
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194 <parameter val="1" idActiveInteractions="c_Myc:C_Met:1"/>
195 </node>
196 <node id="Cdc25A" maxvalue="1">
197 <parameter val="1"/>
198 </node>
199 <node id="CDK46_CycD" maxvalue="1">
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201 </node>
202 <node id="CDK2_CycE" maxvalue="1">
203 <parameter val="1" idActiveInteractions="Cdc25A:CDK2_CycE:1 E2F1:CDK2_CycE:1"/>
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208 <node id="E2F1" maxvalue="1">
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225 <parameter val="1" idActiveInteractions="miR_449a:E2F1:1 c_Myc:E2F1:1"/>
226 <parameter val="1" idActiveInteractions="miR_449a:E2F1:1 c_Myc:E2F1:1 Sirt_1:E2F1:1"/>
227 <parameter val="1" idActiveInteractions="miR_449a:E2F1:1 c_Myc:E2F1:1 RB:E2F1:1"/>
228 <parameter val="1" idActiveInteractions="miR_449a:E2F1:1 c_Myc:E2F1:1 RB:E2F1:1
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229 <parameter val="1" idActiveInteractions="miR_449a:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1"/>
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    Sirt_1:E2F1:1"/>
231 <parameter val="1" idActiveInteractions="miR_449a:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1
    RB:E2F1:1"/>
232 <parameter val="1" idActiveInteractions="miR_449a:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1
    RB:E2F1:1 Sirt_1:E2F1:1"/>
233 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1"/>
234 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 Sirt_1:E2F1:1"/>
235 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 Cdc25A:E2F1:1"/>
236 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 Cdc25A:E2F1:1 Sirt_1:E2F1:1"/>
237 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1"/>
238 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1 Sirt_1:E2F1:1"/>
239 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1 RB:E2F1:1"/>
240 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1 RB:E2F1:1
    Sirt_1:E2F1:1"/>
241 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1"/>
242 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1
    Sirt_1:E2F1:1"/>
243 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1
    RB:E2F1:1"/>
244 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1

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245     RB:E2F1:1 Sirt_1:E2F1:1"/>
246 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1"/>
247 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1"/>
248 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Sirt_1:E2F1:1"/>
249 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    RB:E2F1:1"/>
250 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    RB:E2F1:1 Sirt_1:E2F1:1"/>
251 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1"/>
252 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1 Sirt_1:E2F1:1"/>
253 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1 RB:E2F1:1"/>
254 <parameter val="1" idActiveInteractions="miR_34a:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1 RB:E2F1:1 Sirt_1:E2F1:1"/>
255 <parameter val="1" idActiveInteractions="ATM:E2F1:1"/>
256 <parameter val="1" idActiveInteractions="ATM:E2F1:1 Sirt_1:E2F1:1"/>
257 <parameter val="1" idActiveInteractions="ATM:E2F1:1 Cdc25A:E2F1:1"/>
258 <parameter val="1" idActiveInteractions="ATM:E2F1:1 Cdc25A:E2F1:1 Sirt_1:E2F1:1"/>
259 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1"/>
260 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 Sirt_1:E2F1:1"/>
261 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 Cdc25A:E2F1:1"/>
262 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 Cdc25A:E2F1:1
    Sirt_1:E2F1:1"/>
263 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1"/>
264 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1 Sirt_1:E2F1:1"/>
265 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1 RB:E2F1:1"/>
266 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1 RB:E2F1:1 Sirt_1:E2F1:1
    "/>
267 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1"/>
268 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1
    Sirt_1:E2F1:1"/>
269 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1 RB:E2F1:1
    "/>
270 <parameter val="1" idActiveInteractions="ATM:E2F1:1 c_Myc:E2F1:1 Cdc25A:E2F1:1 RB:E2F1:1
    Sirt_1:E2F1:1"/>
271 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1"/>
272 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Sirt_1:E2F1:1"/>
273 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    RB:E2F1:1"/>
274 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    RB:E2F1:1 Sirt_1:E2F1:1"/>
275 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1"/>
276 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1 Sirt_1:E2F1:1"/>
277 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1 RB:E2F1:1"/>
278 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_449a:E2F1:1 c_Myc:E2F1:1
    Cdc25A:E2F1:1 RB:E2F1:1 Sirt_1:E2F1:1"/>
279 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1"/>
280 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 Sirt_1:E2F1:1"/>
281 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 Cdc25A:E2F1:1"/>
282 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 Cdc25A:E2F1:1
    Sirt_1:E2F1:1"/>
283 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 c_Myc:E2F1:1"/>
284 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 c_Myc:E2F1:1
    Sirt_1:E2F1:1"/>

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285 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 c_Myc:E2F1:1
286 RB:E2F1:1"/>
287 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 c_Myc:E2F1:1
288 Cdc25A:E2F1:1"/>
289 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 c_Myc:E2F1:1
290 Cdc25A:E2F1:1 Sirt_1:E2F1:1"/>
291 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 miR_449a:E2F1:1"/>
292 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 miR_449a:E2F1:1
293 Cdc25A:E2F1:1"/>
294 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 miR_449a:E2F1:1
295 c_Myc:E2F1:1 Sirt_1:E2F1:1"/>
296 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 miR_449a:E2F1:1
297 c_Myc:E2F1:1 RB:E2F1:1"/>
298 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 miR_449a:E2F1:1
299 c_Myc:E2F1:1 Cdc25A:E2F1:1"/>
300 <parameter val="1" idActiveInteractions="ATM:E2F1:1 miR_34a:E2F1:1 miR_449a:E2F1:1
301 c_Myc:E2F1:1 Cdc25A:E2F1:1 RB:E2F1:1"/>
302 </node>
303 <node id="Sirt_1" maxvalue="1">
304 <parameter val="1"/>
305 <parameter val="1" idActiveInteractions="E2F1:Sirt_1:1"/>
306 <parameter val="1" idActiveInteractions="E2F1:Sirt_1:1 HDAC1:Sirt_1:1"/>
307 <parameter val="1" idActiveInteractions="miR_449a:Sirt_1:1 E2F1:Sirt_1:1"/>
308 <parameter val="1" idActiveInteractions="miR_449a:Sirt_1:1 E2F1:Sirt_1:1 HDAC1:Sirt_1:1"
309 />
310 <parameter val="1" idActiveInteractions="miR_34a:Sirt_1:1 E2F1:Sirt_1:1"/>
311 <parameter val="1" idActiveInteractions="miR_34a:Sirt_1:1 E2F1:Sirt_1:1 HDAC1:Sirt_1:1"
312 />
313 </node>
314 <node id="HDAC1" maxvalue="1">
315 <parameter val="1"/>
316 <parameter val="1" idActiveInteractions="Sirt_1:HDAC1:1"/>
317 <parameter val="1" idActiveInteractions="miR_449a:HDAC1:1"/>
318 <parameter val="1" idActiveInteractions="miR_449a:HDAC1:1 Sirt_1:HDAC1:1"/>
319 <parameter val="1" idActiveInteractions="miR_34a:HDAC1:1"/>
320 <parameter val="1" idActiveInteractions="miR_34a:HDAC1:1 Sirt_1:HDAC1:1"/>
321 <parameter val="1" idActiveInteractions="miR_34a:HDAC1:1 miR_449a:HDAC1:1"/>
322 <parameter val="1" idActiveInteractions="miR_34a:HDAC1:1 miR_449a:HDAC1:1 Sirt_1:HDAC1:1"
323 />
324 <parameter val="1" idActiveInteractions="DNA_Damage:HDAC1:1"/>
325 <parameter val="1" idActiveInteractions="DNA_Damage:HDAC1:1 Sirt_1:HDAC1:1"/>
326 <parameter val="1" idActiveInteractions="DNA_Damage:HDAC1:1 miR_449a:HDAC1:1"/>

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326 <parameter val="1" idActiveInteractions="DNA_Damage:HDAC1:1 miR_449a:HDAC1:1
      Sirt_1:HDAC1:1"/>
327 <parameter val="1" idActiveInteractions="DNA_Damage:HDAC1:1 miR_34a:HDAC1:1"/>
328 <parameter val="1" idActiveInteractions="DNA_Damage:HDAC1:1 miR_34a:HDAC1:1
      Sirt_1:HDAC1:1"/>
329 <parameter val="1" idActiveInteractions="DNA_Damage:HDAC1:1 miR_34a:HDAC1:1
      miR_449a:HDAC1:1"/>
330 </node>
331 <node id="BMI1" maxvalue="1">
332 <parameter val="1" idActiveInteractions="E2F1:BMI1:1"/>
333 <parameter val="1" idActiveInteractions="c_Myc:BMI1:1"/>
334 <parameter val="1" idActiveInteractions="c_Myc:BMI1:1 E2F1:BMI1:1"/>
335 </node>
336 <node id="PUMA" maxvalue="1">
337 <parameter val="1" idActiveInteractions="p53_K:PUMA:1"/>
338 </node>
339 <node id="BCL2" maxvalue="1">
340 <parameter val="1"/>
341 </node>
342 <node id="BAX" maxvalue="1">
343 <parameter val="1" idActiveInteractions="p53_K:BAX:1"/>
344 </node>
345 <node id="Caspase3" maxvalue="1">
346 <parameter val="1" idActiveInteractions="BAX:Caspase3:1"/>
347 <parameter val="1" idActiveInteractions="BCL2:Caspase3:1 BAX:Caspase3:1"/>
348 <parameter val="1" idActiveInteractions="p21:Caspase3:1 BAX:Caspase3:1"/>
349 </node>
350 <node id="Poliferation" maxvalue="1">
351 <parameter val="1" idActiveInteractions="CDK2_CycE:Poliferation:1"/>
352 </node>
353 <node id="Senescence" maxvalue="1">
354 <parameter val="1" idActiveInteractions="p21:Senescence:1"/>
355 </node>
356 <node id="Apoptosis" maxvalue="1">
357 <parameter val="1" idActiveInteractions="Caspase3:Apoptosis:1"/>
358 </node>
359 <edge id="DNA_Damage:DNA_Damage:1" from="DNA_Damage" to="DNA_Damage" sign="positive"
      minvalue="1"/>
360 <edge id="DNA_Damage:ATM:1" from="DNA_Damage" to="ATM" sign="positive" minvalue="1"/>
361 <edge id="Wip1:ATM:1" from="Wip1" to="ATM" sign="negative" minvalue="1"/>
362 <edge id="E2F1:ATM:1" from="E2F1" to="ATM" sign="positive" minvalue="1"/>
363 <edge id="HDAC1:ATM:1" from="HDAC1" to="ATM" sign="negative" minvalue="1"/>
364 <edge id="ATM:Mdm2:1" from="ATM" to="Mdm2" sign="negative" minvalue="1"/>
365 <edge id="p53:Mdm2:1" from="p53" to="Mdm2" sign="positive" minvalue="1"/>
366 <edge id="Wip1:Mdm2:1" from="Wip1" to="Mdm2" sign="negative" minvalue="1"/>
367 <edge id="YY1:Mdm2:1" from="YY1" to="Mdm2" sign="positive" minvalue="1"/>
368 <edge id="ATM:p53:1" from="ATM" to="p53" sign="positive" minvalue="1"/>
369 <edge id="Mdm2:p53:1" from="Mdm2" to="p53" sign="negative" minvalue="1"/>
370 <edge id="YY1:p53:1" from="YY1" to="p53" sign="negative" minvalue="1"/>
371 <edge id="C_Met:p53:1" from="C_Met" to="p53" sign="negative" minvalue="1"/>
372 <edge id="Sirt_1:p53:1" from="Sirt_1" to="p53" sign="negative" minvalue="1"/>
373 <edge id="p53_A:Wip1:1" from="p53_A" to="Wip1" sign="positive" minvalue="1"/>
374 <edge id="miR_16:Wip1:1" from="miR_16" to="Wip1" sign="negative" minvalue="1"/>
375 <edge id="p53:p53_A:1" from="p53" to="p53_A" sign="positive" minvalue="1"/>
376 <edge id="p53_K:p53_A:1" from="p53_K" to="p53_A" sign="negative" minvalue="1"/>
377 <edge id="p53INP1:p53_A:1" from="p53INP1" to="p53_A" sign="negative" minvalue="1"/>
378 <edge id="Sirt_1:p53_A:1" from="Sirt_1" to="p53_A" sign="negative" minvalue="1"/>
379 <edge id="p53:p53_K:1" from="p53" to="p53_K" sign="positive" minvalue="1"/>
380 <edge id="Wip1:p53_K:1" from="Wip1" to="p53_K" sign="negative" minvalue="1"/>
381 <edge id="p53_A:p53_K:1" from="p53_A" to="p53_K" sign="negative" minvalue="1"/>
382 <edge id="Sirt_1:p53_K:1" from="Sirt_1" to="p53_K" sign="negative" minvalue="1"/>
383 <edge id="ATM:miR_34a:1" from="ATM" to="miR_34a" sign="positive" minvalue="1"/>

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384 <edge id="p53:miR_34a:1" from="p53" to="miR_34a" sign="positive" minvalue="1"/>
385 <edge id="lnc_XIST:miR_34a:1" from="lnc_XIST" to="miR_34a" sign="negative" minvalue="1"/>
386 <edge id="ATM:miR_16:1" from="ATM" to="miR_16" sign="positive" minvalue="1"/>
387 <edge id="p53:miR_16:1" from="p53" to="miR_16" sign="positive" minvalue="1"/>
388 <edge id="lnc_XIST:miR_16:1" from="lnc_XIST" to="miR_16" sign="negative" minvalue="1"/>
389 <edge id="c_Myc:miR_16:1" from="c_Myc" to="miR_16" sign="negative" minvalue="1"/>
390 <edge id="HDAC1:miR_16:1" from="HDAC1" to="miR_16" sign="negative" minvalue="1"/>
391 <edge id="DNA_Damage:miR_449a:1" from="DNA_Damage" to="miR_449a" sign="positive" minvalue=
    "1"/>
392 <edge id="lnc_XIST:miR_449a:1" from="lnc_XIST" to="miR_449a" sign="negative" minvalue="1"/
    >
393 <edge id="miR_34a:lnc_XIST:1" from="miR_34a" to="lnc_XIST" sign="negative" minvalue="1"/>
394 <edge id="miR_16:lnc_XIST:1" from="miR_16" to="lnc_XIST" sign="negative" minvalue="1"/>
395 <edge id="miR_449a:lnc_XIST:1" from="miR_449a" to="lnc_XIST" sign="negative" minvalue="1"/
    >
396 <edge id="YY1:lnc_XIST:1" from="YY1" to="lnc_XIST" sign="positive" minvalue="1"/>
397 <edge id="p53_A:p21:1" from="p53_A" to="p21" sign="positive" minvalue="1"/>
398 <edge id="lnc_XIST:p21:1" from="lnc_XIST" to="p21" sign="negative" minvalue="1"/>
399 <edge id="c_Myc:p21:1" from="c_Myc" to="p21" sign="negative" minvalue="1"/>
400 <edge id="YY1:p21:1" from="YY1" to="p21" sign="negative" minvalue="1"/>
401 <edge id="HDAC1:p21:1" from="HDAC1" to="p21" sign="negative" minvalue="1"/>
402 <edge id="BMI1:p21:1" from="BMI1" to="p21" sign="negative" minvalue="1"/>
403 <edge id="Caspase3:p21:1" from="Caspase3" to="p21" sign="negative" minvalue="1"/>
404 <edge id="p53_A:p53INP1:1" from="p53_A" to="p53INP1" sign="positive" minvalue="1"/>
405 <edge id="p53_K:p53INP1:1" from="p53_K" to="p53INP1" sign="positive" minvalue="1"/>
406 <edge id="miR_34a:c_Myc:1" from="miR_34a" to="c_Myc" sign="negative" minvalue="1"/>
407 <edge id="miR_449a:c_Myc:1" from="miR_449a" to="c_Myc" sign="negative" minvalue="1"/>
408 <edge id="p21:c_Myc:1" from="p21" to="c_Myc" sign="negative" minvalue="1"/>
409 <edge id="C_Met:c_Myc:1" from="C_Met" to="c_Myc" sign="positive" minvalue="1"/>
410 <edge id="RB:c_Myc:1" from="RB" to="c_Myc" sign="negative" minvalue="1"/>
411 <edge id="E2F1:c_Myc:1" from="E2F1" to="c_Myc" sign="positive" minvalue="1"/>
412 <edge id="miR_34a:YY1:1" from="miR_34a" to="YY1" sign="negative" minvalue="1"/>
413 <edge id="c_Myc:YY1:1" from="c_Myc" to="YY1" sign="positive" minvalue="1"/>
414 <edge id="RB:YY1:1" from="RB" to="YY1" sign="negative" minvalue="1"/>
415 <edge id="miR_34a:C_Met:1" from="miR_34a" to="C_Met" sign="negative" minvalue="1"/>
416 <edge id="miR_449a:C_Met:1" from="miR_449a" to="C_Met" sign="negative" minvalue="1"/>
417 <edge id="c_Myc:C_Met:1" from="c_Myc" to="C_Met" sign="positive" minvalue="1"/>
418 <edge id="ATM:Cdc25A:1" from="ATM" to="Cdc25A" sign="negative" minvalue="1"/>
419 <edge id="miR_34a:Cdc25A:1" from="miR_34a" to="Cdc25A" sign="negative" minvalue="1"/>
420 <edge id="miR_16:Cdc25A:1" from="miR_16" to="Cdc25A" sign="negative" minvalue="1"/>
421 <edge id="miR_449a:Cdc25A:1" from="miR_449a" to="Cdc25A" sign="negative" minvalue="1"/>
422 <edge id="miR_34a:CDK46_CycD:1" from="miR_34a" to="CDK46_CycD" sign="negative" minvalue="1"
    />
423 <edge id="miR_16:CDK46_CycD:1" from="miR_16" to="CDK46_CycD" sign="negative" minvalue="1"/
    >
424 <edge id="miR_449a:CDK46_CycD:1" from="miR_449a" to="CDK46_CycD" sign="negative" minvalue=
    "1"/>
425 <edge id="p21:CDK46_CycD:1" from="p21" to="CDK46_CycD" sign="negative" minvalue="1"/>
426 <edge id="Cdc25A:CDK46_CycD:1" from="Cdc25A" to="CDK46_CycD" sign="positive" minvalue="1"/
    >
427 <edge id="miR_34a:CDK2_CycE:1" from="miR_34a" to="CDK2_CycE" sign="negative" minvalue="1"/
    >
428 <edge id="miR_16:CDK2_CycE:1" from="miR_16" to="CDK2_CycE" sign="negative" minvalue="1"/>
429 <edge id="miR_449a:CDK2_CycE:1" from="miR_449a" to="CDK2_CycE" sign="negative" minvalue="1"
    />
430 <edge id="p21:CDK2_CycE:1" from="p21" to="CDK2_CycE" sign="negative" minvalue="1"/>
431 <edge id="Cdc25A:CDK2_CycE:1" from="Cdc25A" to="CDK2_CycE" sign="positive" minvalue="1"/>
432 <edge id="E2F1:CDK2_CycE:1" from="E2F1" to="CDK2_CycE" sign="positive" minvalue="1"/>
433 <edge id="CDK46_CycD:RB:1" from="CDK46_CycD" to="RB" sign="negative" minvalue="1"/>
434 <edge id="CDK2_CycE:RB:1" from="CDK2_CycE" to="RB" sign="negative" minvalue="1"/>
435 <edge id="ATM:E2F1:1" from="ATM" to="E2F1" sign="positive" minvalue="1"/>
436 <edge id="miR_34a:E2F1:1" from="miR_34a" to="E2F1" sign="negative" minvalue="1"/>

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437 <edge id="miR_449a:E2F1:1" from="miR_449a" to="E2F1" sign="negative" minvalue="1"/>
438 <edge id="c_Myc:E2F1:1" from="c_Myc" to="E2F1" sign="positive" minvalue="1"/>
439 <edge id="Cdc25A:E2F1:1" from="Cdc25A" to="E2F1" sign="positive" minvalue="1"/>
440 <edge id="RB:E2F1:1" from="RB" to="E2F1" sign="negative" minvalue="1"/>
441 <edge id="Sirt_1:E2F1:1" from="Sirt_1" to="E2F1" sign="negative" minvalue="1"/>
442 <edge id="miR_34a:Sirt_1:1" from="miR_34a" to="Sirt_1" sign="negative" minvalue="1"/>
443 <edge id="miR_449a:Sirt_1:1" from="miR_449a" to="Sirt_1" sign="negative" minvalue="1"/>
444 <edge id="E2F1:Sirt_1:1" from="E2F1" to="Sirt_1" sign="positive" minvalue="1"/>
445 <edge id="HDAC1:Sirt_1:1" from="HDAC1" to="Sirt_1" sign="negative" minvalue="1"/>
446 <edge id="DNA_Damage:HDAC1:1" from="DNA_Damage" to="HDAC1" sign="negative" minvalue="1"/>
447 <edge id="miR_34a:HDAC1:1" from="miR_34a" to="HDAC1" sign="negative" minvalue="1"/>
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449 <edge id="Sirt_1:HDAC1:1" from="Sirt_1" to="HDAC1" sign="negative" minvalue="1"/>
450 <edge id="miR_16:BM1:1" from="miR_16" to="BM1" sign="negative" minvalue="1"/>
451 <edge id="c_Myc:BM1:1" from="c_Myc" to="BM1" sign="positive" minvalue="1"/>
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453 <edge id="p53_K:PUMA:1" from="p53_K" to="PUMA" sign="positive" minvalue="1"/>
454 <edge id="miR_34a:BCL2:1" from="miR_34a" to="BCL2" sign="negative" minvalue="1"/>
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457 <edge id="PUMA:BCL2:1" from="PUMA" to="BCL2" sign="negative" minvalue="1"/>
458 <edge id="p53_K:BAX:1" from="p53_K" to="BAX" sign="positive" minvalue="1"/>
459 <edge id="BCL2:BAX:1" from="BCL2" to="BAX" sign="negative" minvalue="1"/>
460 <edge id="p21:Caspase3:1" from="p21" to="Caspase3" sign="negative" minvalue="1"/>
461 <edge id="BCL2:Caspase3:1" from="BCL2" to="Caspase3" sign="negative" minvalue="1"/>
462 <edge id="BAX:Caspase3:1" from="BAX" to="Caspase3" sign="positive" minvalue="1"/>
463 <edge id="p53:Poliferation:1" from="p53" to="Poliferation" sign="negative" minvalue="1"/>
464 <edge id="CDK2_CycE:Poliferation:1" from="CDK2_CycE" to="Poliferation" sign="positive"
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465 <edge id="p21:Senescence:1" from="p21" to="Senescence" sign="positive" minvalue="1"/>
466 <edge id="CDK2_CycE:Senescence:1" from="CDK2_CycE" to="Senescence" sign="negative"
    minvalue="1"/>
467 <edge id="Caspase3:Apoptosis:1" from="Caspase3" to="Apoptosis" sign="positive" minvalue="1"
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468 </graph>
469 </gxl>

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