SEQUENCE LISTING

<110> AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH
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Stanton, Lawrence W.

<120> MUTANT SOX PROTEINS AND METHODS OF INDUCING PLURIPOTENCY

<130> 93231-726

<150> US 61/272,793
<151> 2009-11-04

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<170> PatentIn version 3.3

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Gln His Met Gln Asp
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Gln His Met Gln Asp
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<213> Mus musculus

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<223> Sox2

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Met Tyr Asn Met Met Glu Thr Glu Leu Lys Pro Pro Gly Pro Gln Gln
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Ala Ser Gly Gly Gly Gly Gly Gly Gly Asn Ala Thr Ala Ala Ala Thr
20 25 30

Gly Gly Asn Gln Lys Asn Ser Pro Asp Arg Val Lys Arg Pro Met Asn
35 40 45

Ala Phe Met Val Trp Ser Arg Gly Gln Arg Arg Lys Met Ala Gln Glu
50 55 60

Asn Pro Lys Met His Asn Ser Glu Ile Ser Lys Arg Leu Gly Ala Glu
65 70 75 80

Trp Lys Leu Leu Ser Glu Thr Glu Lys Arg Pro Phe Ile Asp Glu Ala
85 90 95

Lys Arg Leu Arg Ala Leu His Met Lys Glu His Pro Asp Tyr Lys Tyr
100 105 110

Arg Pro Arg Arg Lys Thr Lys Thr Leu Met Lys Lys Asp Lys Tyr Thr
115 120 125

Leu Pro Gly Gly Leu Leu Ala Pro Gly Gly Asn Ser Met Ala Ser Gly
130 135 140

Val Gly Val Gly Ala Gly Leu Gly Ala Gly Val Asn Gln Arg Met Asp
145 150 155 160

Ser Tyr Ala His Met Asn Gly Trp Ser Asn Gly Ser Tyr Ser Met Met
165 170 175

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Gln Glu Gln Leu Gly Tyr Pro Gln His Pro Gly Leu Asn Ala His Gly
            180                 185                 190

Ala Ala Gln Met Gln Pro Met His Arg Tyr Asp Val Ser Ala Leu Gln
        195                 200                 205

Tyr Asn Ser Met Thr Ser Ser Gln Thr Tyr Met Asn Gly Ser Pro Thr
    210                 215                 220

Tyr Ser Met Ser Tyr Ser Gln Gln Gly Thr Pro Gly Met Ala Leu Gly
225                 230                 235                 240

Ser Met Gly Ser Val Val Lys Ser Glu Ala Ser Ser Ser Pro Pro Val
                245                 250                 255

Val Thr Ser Ser Ser His Ser Arg Ala Pro Cys Gln Ala Gly Asp Leu
            260                 265                 270

Arg Asp Met Ile Ser Met Tyr Leu Pro Gly Ala Glu Val Pro Glu Pro
        275                 280                 285

Ala Ala Pro Ser Arg Leu His Met Ala Gln His Tyr Gln Ser Gly Pro
    290                 295                 300

Val Pro Gly Thr Ala Ile Asn Gly Thr Leu Pro Leu Ser His Met
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Thr Ser Gly Gly Gly Gly Gly Asn Ser Thr Ala Ala Ala Ala Gly Gly
            20                  25                  30

Asn Gln Lys Asn Ser Pro Asp Arg Val Lys Arg Pro Met Asn Ala Phe
        35                  40                  45

Met Val Trp Ser Arg Gly Gln Arg Arg Lys Met Ala Gln Glu Asn Pro
    50                  55                  60

Lys Met His Asn Ser Glu Ile Ser Lys Arg Leu Gly Ala Glu Trp Lys
65                  70                  75                  80
```

```
Leu Leu Ser Glu Thr Glu Lys Arg Pro Phe Ile Asp Glu Ala Lys Arg
                85                  90                  95

Leu Arg Ala Leu His Met Lys Glu His Pro Asp Tyr Lys Tyr Arg Pro
            100                 105                 110

Arg Arg Lys Thr Lys Thr Leu Met Lys Lys Asp Lys Tyr Thr Leu Pro
        115                 120                 125

Gly Gly Leu Leu Ala Pro Gly Gly Asn Ser Met Ala Ser Gly Val Gly
    130                 135                 140

Val Gly Ala Gly Leu Gly Ala Gly Val Asn Gln Arg Met Asp Ser Tyr
145                 150                 155                 160

Ala His Met Asn Gly Trp Ser Asn Gly Ser Tyr Ser Met Met Gln Asp
                165                 170                 175

Gln Leu Gly Tyr Pro Gln His Pro Gly Leu Asn Ala His Gly Ala Ala
            180                 185                 190

Gln Met Gln Pro Met His Arg Tyr Asp Val Ser Ala Leu Gln Tyr Asn
        195                 200                 205

Ser Met Thr Ser Ser Gln Thr Tyr Met Asn Gly Ser Pro Thr Tyr Ser
    210                 215                 220

Met Ser Tyr Ser Gln Gln Gly Thr Pro Gly Met Ala Leu Gly Ser Met
225                 230                 235                 240

Gly Ser Val Val Lys Ser Glu Ala Ser Ser Ser Pro Pro Val Val Thr
                245                 250                 255

Ser Ser Ser His Ser Arg Ala Pro Cys Gln Ala Gly Asp Leu Arg Asp
            260                 265                 270

Met Ile Ser Met Tyr Leu Pro Gly Ala Glu Val Pro Glu Pro Ala Ala
        275                 280                 285

Pro Ser Arg Leu His Met Ser Gln His Tyr Gln Ser Gly Pro Val Pro
    290                 295                 300

Gly Thr Ala Ile Asn Gly Thr Leu Pro Leu Ser His Met
305                 310                 315
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Pro Ala Leu Glu Ala Glu Leu Ser Asp Gly Leu Ser Pro Pro Ala Val
            20                  25                  30

Pro Arg Pro Ser Gly Asp Lys Ser Ser Glu Ser Arg Ile Arg Arg Pro
        35                  40                  45

Met Asn Ala Phe Met Val Trp Ala Lys Asp Glu Arg Lys Arg Leu Ala
    50                  55                  60

Val Gln Asn Pro Asp Leu His Asn Ala Glu Leu Ser Lys Met Leu Gly
65                  70                  75                  80

Lys Ser Trp Lys Ala Leu Thr Leu Ser Gln Lys Arg Pro Tyr Val Asp
                85                  90                  95

Glu Ala Glu Arg Leu Arg Leu Gln His Met Gln Asp Tyr Pro Asn Tyr
            100                 105                 110

Lys Tyr Arg Pro Arg Arg Lys Lys Gln Gly Lys Arg Leu Cys Lys Arg
        115                 120                 125

Val Asp Pro Gly Phe Leu Leu Ser Ser Leu Ser Arg Asp Gln Asn Thr
    130                 135                 140

Leu Pro Glu Lys Asn Gly Ile Gly Arg Gly Glu Lys Glu Asp Arg Gly
145                 150                 155                 160

Glu Tyr Ser Pro Gly Ala Thr Leu Pro Gly Leu His Ser Cys Tyr Arg
                165                 170                 175

Glu Gly Ala Ala Ala Ala Pro Gly Ser Val Asp Thr Tyr Pro Tyr Gly
            180                 185                 190

Leu Pro Thr Pro Pro Glu Met Ser Pro Leu Asp Ala Leu Glu Pro Glu
        195                 200                 205

Gln Thr Phe Phe Ser Ser Ser Cys Gln Glu Glu His Gly His Pro His
    210                 215                 220

His Leu Pro His Leu Pro Gly Pro Pro Tyr Ser Pro Glu Phe Thr Pro
225                 230                 235                 240

Ser Pro Leu His Cys Ser His Pro Leu Gly Ser Leu Ala Leu Gly Gln
                245                 250                 255
```

```
Ser Pro Gly Val Ser Met Met Ser Ser Val Ser Gly Cys Pro Pro Ser
            260                 265                 270

Pro Ala Tyr Tyr Ser His Ala Thr Tyr His Pro Leu His Pro Asn Leu
        275                 280                 285

Gln Ala His Leu Gly Gln Leu Ser Pro Pro Pro Glu His Pro Gly Phe
    290                 295                 300

Asp Thr Leu Asp Gln Leu Ser Gln Val Glu Leu Leu Gly Asp Met Asp
305                 310                 315                 320

Arg Asn Glu Phe Asp Gln Tyr Leu Asn Thr Pro Gly His Pro Asp Ser
                325                 330                 335

Ala Ala Gly Val Gly Thr Leu Thr Gly His Val Pro Leu Ser Gln Gly
            340                 345                 350

Thr Pro Thr Gly Pro Thr Glu Thr Ser Leu Ile Ser Val Leu Ala Asp
        355                 360                 365

Ala Thr Ala Thr Tyr Tyr Asn Ser Tyr Ser Val Ser
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<213> Homo Sapiens

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Pro Ala Leu Asp Ala Glu Leu Ser Asp Gly Gln Ser Pro Pro Ala Val
            20                  25                  30

Pro Arg Pro Pro Gly Asp Lys Gly Ser Glu Ser Arg Ile Arg Arg Pro
        35                  40                  45

Met Asn Ala Phe Met Val Trp Ala Lys Asp Glu Arg Lys Arg Leu Ala
    50                  55                  60

Val Gln Asn Pro Asp Leu His Asn Ala Glu Leu Ser Lys Met Leu Gly
65                  70                  75                  80

Lys Ser Trp Lys Ala Leu Thr Leu Ser Gln Lys Arg Pro Tyr Val Asp
                85                  90                  95
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Glu Ala Glu Arg Leu Arg Leu Gln His Met Gln Asp Tyr Pro Asn Tyr
            100                 105                 110

Lys Tyr Arg Pro Arg Arg Lys Lys Gln Ala Lys Arg Leu Cys Lys Arg
        115                 120                 125

Val Asp Pro Gly Phe Leu Leu Ser Ser Leu Ser Arg Asp Gln Asn Ala
    130                 135                 140

Leu Pro Glu Lys Arg Ser Gly Ser Arg Gly Ala Leu Gly Glu Lys Glu
145                 150                 155                 160

Asp Arg Gly Glu Tyr Ser Pro Gly Thr Ala Leu Pro Ser Leu Arg Gly
                165                 170                 175

Cys Tyr His Glu Gly Pro Ala Gly Gly Gly Gly Gly Gly Thr Pro Ser
            180                 185                 190

Ser Val Asp Thr Tyr Pro Tyr Gly Leu Pro Thr Pro Pro Glu Met Ser
        195                 200                 205

Pro Leu Asp Val Leu Glu Pro Glu Gln Thr Phe Phe Ser Ser Pro Cys
    210                 215                 220

Gln Glu Glu His Gly His Pro Arg Arg Ile Pro His Leu Pro Gly His
225                 230                 235                 240

Pro Tyr Ser Pro Glu Tyr Ala Pro Ser Pro Leu His Cys Ser His Pro
                245                 250                 255

Leu Gly Ser Leu Ala Leu Gly Gln Ser Pro Gly Val Ser Met Met Ser
            260                 265                 270

Pro Val Pro Gly Cys Pro Pro Ser Pro Ala Tyr Tyr Ser Pro Ala Thr
        275                 280                 285

Tyr His Pro Leu His Ser Asn Leu Gln Ala His Leu Gly Gln Leu Ser
    290                 295                 300

Pro Pro Pro Glu His Pro Gly Phe Asp Ala Leu Asp Gln Leu Ser Gln
305                 310                 315                 320

Val Glu Leu Leu Gly Asp Met Asp Arg Asn Glu Phe Asp Gln Tyr Leu
                325                 330                 335

Asn Thr Pro Gly His Pro Asp Ser Ala Thr Gly Ala Met Ala Leu Ser
            340                 345                 350

Gly His Val Pro Val Ser Gln Val Thr Pro Thr Gly Pro Thr Glu Thr
        355                 360                 365
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Ser Leu Ile Ser Val Leu Ala Asp Ala Thr Ala Thr Tyr Tyr Asn Ser
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Tyr Ser Val Ser
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20 25 30

Ala Glu Ser Leu Ser Pro Leu Gly Asp Val Lys Val Lys Gly Glu Val
35 40 45

Val Ala Ser Ser Gly Ala Pro Ala Gly Thr Ser Gly Arg Ala Lys Ala
50 55 60

Glu Ser Arg Ile Arg Arg Pro Met Asn Ala Phe Met Val Trp Ala Lys
65 70 75 80

Asp Glu Arg Lys Arg Leu Ala Gln Gln Asn Pro Asp Leu His Asn Ala
85 90 95

Glu Leu Ser Lys Met Leu Gly Lys Ser Trp Lys Ala Leu Thr Leu Ala
100 105 110

Glu Lys Arg Pro Phe Val Glu Glu Ala Glu Arg Leu Arg Val Gln His
115 120 125

Met Gln Asp His Pro Asn Tyr Lys Tyr Arg Pro Arg Arg Arg Lys Gln
130 135 140

Val Lys Arg Met Lys Arg Val Glu Gly Gly Phe Leu His Ala Leu Val
145 150 155 160

Glu Pro Gln Ala Gly Ala Leu Gly Pro Glu Gly Gly Arg Val Ala Met
165 170 175

Asp Gly Leu Gly Leu Pro Phe Pro Glu Pro Gly Tyr Pro Ala Gly Pro
180 185 190

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Pro Leu Met Ser Pro His Met Gly Pro His Tyr Arg Asp Cys Gln Gly
        195                 200                 205

Leu Gly Ala Pro Ala Leu Asp Gly Tyr Pro Leu Pro Thr Pro Asp Thr
    210                 215                 220

Ser Pro Leu Asp Gly Val Glu Gln Asp Pro Ala Phe Phe Ala Ala Pro
225                 230                 235                 240

Leu Pro Gly Asp Cys Pro Ala Ala Gly Thr Tyr Thr Tyr Ala Pro Val
                245                 250                 255

Ser Asp Tyr Ala Val Ser Val Glu Pro Pro Ala Gly Pro Met Arg Val
            260                 265                 270

Gly Pro Asp Pro Ser Gly Pro Ala Met Pro Gly Ile Leu Ala Pro Pro
        275                 280                 285

Ser Ala Leu His Leu Tyr Tyr Gly Ala Met Gly Ser Pro Ala Ala Ser
    290                 295                 300

Ala Gly Arg Gly Phe His Ala Gln Pro Gln Gln Pro Leu Gln Pro Gln
305                 310                 315                 320

Ala Pro Pro Pro Pro Pro Gln Gln Gln His Pro Ala His Gly Pro Gly
                325                 330                 335

Gln Pro Ser Pro Pro Pro Glu Ala Leu Pro Cys Arg Asp Gly Thr Glu
            340                 345                 350

Ser Asn Gln Pro Thr Glu Leu Leu Gly Glu Val Asp Arg Thr Glu Phe
        355                 360                 365

Glu Gln Tyr Leu Pro Phe Val Tyr Lys Pro Glu Met Gly Leu Pro Tyr
    370                 375                 380

Gln Gly His Asp Cys Gly Val Asn Leu Ser Asp Ser His Gly Ala Ile
385                 390                 395                 400

Ser Ser Val Val Ser Asp Ala Ser Ser Ala Val Tyr Tyr Cys Asn Tyr
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Pro Asp Ile
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Gln Ser Ala Leu Pro Ala Val Met Ala Gly Leu Gly Pro Cys Pro Trp
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35 40 45

Pro Ala Asn Ser Gly Ala Pro Ala Gly Ala Ala Gly Arg Ala Lys Gly
50 55 60

Glu Ser Arg Ile Arg Arg Pro Met Asn Ala Phe Met Val Trp Ala Lys
65 70 75 80

Asp Glu Arg Lys Arg Leu Ala Gln Gln Asn Pro Asp Leu His Asn Ala
85 90 95

Glu Leu Ser Lys Met Leu Gly Lys Ser Trp Lys Ala Leu Thr Leu Ala
100 105 110

Glu Lys Arg Pro Phe Val Glu Glu Ala Glu Arg Leu Arg Val Gln His
115 120 125

Met Gln Asp His Pro Asn Tyr Lys Tyr Arg Pro Arg Arg Arg Lys Gln
130 135 140

Val Lys Arg Leu Lys Arg Val Glu Gly Gly Phe Leu His Gly Leu Ala
145 150 155 160

Glu Pro Gln Ala Ala Ala Leu Gly Pro Glu Gly Gly Arg Val Ala Met
165 170 175

Asp Gly Leu Gly Leu Gln Phe Pro Glu Gln Gly Phe Pro Ala Gly Pro
180 185 190

Pro Leu Leu Pro Pro His Met Gly Gly His Tyr Arg Asp Cys Gln Ser
195 200 205

Leu Gly Ala Pro Pro Leu Asp Gly Tyr Pro Leu Pro Thr Pro Asp Thr
210 215 220

Ser Pro Leu Asp Gly Val Asp Pro Asp Pro Ala Phe Phe Ala Ala Pro
225 230 235 240

Met Pro Gly Asp Cys Pro Ala Ala Gly Thr Tyr Ser Tyr Ala Gln Val
245 250 255

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Ser Asp Tyr Ala Gly Pro Pro Glu Pro Pro Ala Gly Pro Met His Pro
            260                 265                 270

Arg Leu Gly Pro Glu Pro Ala Gly Pro Ser Ile Pro Gly Leu Leu Ala
        275                 280                 285

Pro Pro Ser Ala Leu His Val Tyr Tyr Gly Ala Met Gly Ser Pro Gly
    290                 295                 300

Ala Gly Gly Gly Arg Gly Phe Gln Met Gln Pro Gln His Gln His Gln
305                 310                 315                 320

His Gln His Gln His His Pro Pro Gly Pro Gly Gln Pro Ser Pro Pro
                325                 330                 335

Pro Glu Ala Leu Pro Cys Arg Asp Gly Thr Asp Pro Ser Gln Pro Ala
            340                 345                 350

Glu Leu Leu Gly Glu Val Asp Arg Thr Glu Phe Glu Gln Tyr Leu His
        355                 360                 365

Phe Val Cys Lys Pro Glu Met Gly Leu Pro Tyr Gln Gly His Asp Ser
    370                 375                 380

Gly Val Asn Leu Pro Asp Ser His Gly Ala Ile Ser Ser Val Val Ser
385                 390                 395                 400

Asp Ala Ser Ser Ala Val Tyr Tyr Cys Asn Tyr Pro Asp Val
                405                 410
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