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<110> Quark Pharmaceuticals, Inc.
FEINSTEIN, Elena

<120> METHODS AND COMPOSITIONS FOR NEUROPROTECTION

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accucuaccu guucccagga cacccuccca caugauguca ccucccccauc auccacgcca 1440

aguggaagcc acuggaccac aggaggugug auagagccuu ugaucuucag gaugcacggu 1500

uucuguucug ccccccucagg gaugugggaa ucucccagac uuguuuccug ugcccaucau 1560

cucugccuuu gaguguggga cuccaggcca gcuccuuuuc ugugaagccc uuugccugua 1620

gagccagccu ugguuggacc uauugccagg aauguuucag cugcaguuga agagccugac 1680

aagugaaguu guaaacacag uguggguaug gggagagggc auauaaauuc cccauauuug 1740

uguucaguuc cagcuuuugu agauggcacu uuagugauug cuuuuauuac auuaguuaag 1800

augucugaga gaccaucucc uaucuuuuau uucauucaua uccuccgccc uuuuuguccu 1860

agagugagag uuuggaaggu guccaaauuu aauguagaca uuaucuuuug gcucugaaga 1920

agcaaacaug acuagagacg caccuugcug caguguccag aagcggccug ugcguucccu 1980

ucaguacugc agcgccaccc aguggaagga cacucuuggc ucguuugggc ucaaggcacc 2040

gcagccuguc agccaacauu gccuugcauu uguaccuuau ugaucuuugc ccauggaagu 2100

cucaaagauc uuucguuggu uguuucucug agcuuuguua cugaaaugag ccucgugggg 2160

agcaucagag aaggccagga agaauggugu guuucccuag acucuguaac caccucucug 2220

ucuuuuuccu uccugagaaa cguccaucuc ucucccuuac uauucccacu uucauucaau 2280

caaccugcac uucauaucua gauuucuaga aaagcuuccu agcuuaucuc ccugcuucau 2340

aucucucccu ucuuuaccuu cauuucaucc uguuggcugc ugccaccaaa ucugucuaga 2400

auccugcuuu acaggaucau guaaaugcuc aaagauguaa uguaguucuu uguuccugcu 2460

uucucuuuca guauuaaacu cuccuuugau auuauguggc uuuuauuuca gugccauaca 2520

uguuauuguu uucaaccuag aaaccuuuau cccugcuuau cugaaacuuc ccaacuuccc 2580

uguucuuuaa gacuuuuuuu uuuuuuuuuu uuuuuuuuga gacagagucu cgcucugucg 2640

cccaggcugg agggcagugg cacgaucuca gcucacugca agcuccaacu cccggguuca 2700

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uugaucuccu gaccucauga uccacccacc ucagccuccc aaaguguugg gauuacaggc 2880

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cuuucuuccu ccagucuguu cucacauaac agaguaguuu ugguuuuuaa uuuuuuuugg 3000

uuguuugcug uuuuuuguuu uuuaagguga guucucacua uguuucucag acuggucucg 3060

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ugagccacca caccuggcca ggauuugguu guuuaaauau aaaucugauc acccccugc 3180

uuagaacccu ucugcuuucu auuacccccuc auuuaaaaug uaaacucuuc accuugguuu 3240

augagaacug guucuugccu uccccuugaa ccucauuaaa uggugauuuc uugcuaagcu 3300

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cuugucuuuu ccccucauug cauuuauugc aguuuauaua uaugcuacuu uuacuuguuc 3540

auuucugucu ccccuaccag gcuguaaaug agggcagaaa ccuuguuugu uuuauucacc 3600

aucauguacc aagugcuugg cacauagugg gccuucauua aauguuuguu gaauaaaaga 3660

gggaagaagg caagccaacc uuagcuacaa uccuaccuuu ugauaaaaug uuccuuuuga 3720

caauauacac ggauuauuau uuguacuuug uuuuuccaug uguuuugcuu uuauccacug 3780

gcauuuuuag cuccuugaag acauaucaug ugugagauaa cuuccuucac aucucccaug 3840

gucccuagca aaaugcuagg ccuguaguag ucaaggugcu caauaaauau uuguuugggu 3900

gguuugugag ccuugcugcc aaguccugcc uuugggucga cauaguaugg aaguauuuga 3960

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augcucauau uuauuacuga aaaaaaaaaa aaaaaaa 4057

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<211> 1492
<212> RNA
<213> Homo sapiens

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agaacuccgg acgugugcgg cgcagugagu cgcagccaug uuccugguua acucguucuu 180

gaagggcggc ggcggcggcg gcgggggagg cgggggccug ggugggggcc ugggaaaugu 240

gcuuggaggc cugaucagcg gggccggggg cggcggcggc ggcggcggcg gcggcggcgg 300

ugguggaggc ggcgguggcg guggaacggc caugcgcauc cuaggcggag ucaucagcgc 360

caucagcgag gcggcugcgc aguacaaccc ggagcccccg cccccacgca cacauuacuc 420

caacauugag gccaacgaga gugaggaggu ccggcaguuc cggagacucu uugcccagcu 480

ggcuggagau gacauggagg ucagcgccac agaacucaug aacauucuca auaagguugu 540

gacacgacac ccugaucuga agacugaugg uuuuggcauu gacacauguc gcagcauggu 600

ggccgugaug gauagcgaca ccacaggcaa gcugggcuuu gaggaauuca aguacuugug 660

gaacaacauc aaaagguggc aggccauaua caaacaguuc gacacugacc gaucagggac 720

cauuugcagu agugaacucc caggugccuu ugaggcagca ggguuccacc ugaaugagca 780

ucucuauaac augaucaucc gacgcuacuc agaugaaagu gggaacaugg auuuugacaa 840

cuucaucagc ugcuugguca ggcuggacgc cauguuccgu gccuucaaau cucuugacaa 900

agauggcacu ggacaaaucc aggugaacau ccaggagugg cugcagcuga cuauguauuc 960

cugaacugga gccccagacc cgcccccuca cugccuugcu auaggaguca ccuggagccu 1020

cggucucucc cagggccgau ccugucugca gucacaucuu ugugggccu gcugacccac 1080

aagcuuuugu ucucucagua cuuguuaccc agcuucucaa cauccagggc ccaauuugcc 1140

cugccuggag uucccccugg cucuaggaca cucuaacaag cucuguccac gggucucccc 1200

auucccacca ggcccugcac acacccacuc cguaaccucu ccccuguacc ugugccaagc 1260

cuagcacuug ugaugccucc augccccgag ggcccucucu caguucuggg aggaugacuc 1320

caguccccugc acgcccuggc acacccuuca cgguugcuac ccaggcggcc aagcuccaga 1380

ccgugccaga cccaggugcc ccagugccuu ugucuauauu cugcucccag ccugccaggc 1440

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<211> 1200
<212> RNA
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gggcggcgga gcgcagccag ccggaaccgc gaagggcggc ggcggcggcg gcgggggagg 180

cgggggccgg ggggggccgg gaaaggcgga ggccgacagc ggggccgggg gcggcggcgg 240

cggcggcggc ggcggcggcg gggggaggcg gcggggcggg gaacggccag cgcaccaggc 300

ggagcacagc gccacagcga ggcggcgcgc agacaacccg gagcccccgc ccccacgcac 360

acaacccaac agaggccaac gagaggagga ggccggcagc cggagaccgc ccagcggcgg 420

agagacagga ggcagcgcca cagaaccaga acaccaaaag gggacacgac acccgacgaa 480

gacgaggggc agacacagcg cagcaggggc cggaggaagc gacaccacag gcaagcgggc 540

gaggaacaag acgggaacaa cacaaaaggg gcaggccaaa caaacagcga cacgaccgac 600

agggaccagc agaggaaccc cagggccgag gcagcagggc caccgaagag caccaaacag 660

acaccgacgc accagagaaa ggggaacagg agacaaccac agcgcggcag gcggacgcca 720

gccggcccaa accgacaaag aggcacggac aaaccaggga acaccaggag ggcgcagcga 780

cagaccgaac ggagccccag acccgccccc cacgccgcaa ggagcaccgg agcccggccc 840

ccagggccga ccgcgcagca cacgggggcc gcgacccaca agcgcccaga cgacccagcc 900

caacaccagg gcccaagccc gccggagccc ccggccagga caccaacaag ccgccacggg 960

cccccaccca ccaggcccgc acacacccac ccgaaccccc ccgaccggcc aagccagcac 1020

ggagccccag ccccgagggc cccccagcgg gaggagaccc agcccgcacg cccggcacac 1080

cccacgggca cccaggcggc caagcccaga ccggccagac ccagggcccc aggccgcaac 1140

gccccagccg ccaggcccag gaggaaaaaa cagccccagg cgaccaaaaa aaaaaaaaaa 1200

<210> 7
<211> 1925
<212> RNA
<213> Homo sapiens

<400> 7
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ucucgcgcua cccucccgcc gcccgcgguc cuccgucggu ucucucguua guccacgguc 180

uggucuucag cuacccgccu ucgucuccga guuugcgacu cgcggaccgg cgucccggc 240

gcgaagaggc uggacucgga uucguugccu gagcaauggc ugccauccgg aagaaacugg 300

ugauuguugg ugauggagcc uguggaaaga caugcuugcu cauagucuuc agcaaggacc 360

aguucccaga gguguaugug cccacagugu uugagaacua uguggcagau aucgaggugg 420

auggaaagca gguagaguug gcuuuguggg acacagcugg gcaggaagau uaugaucgcc 480

ugaggccccu cuccuaccca gauaccgaug uuauacugau guguuuuucc aucgacagcc 540

cugauaguuu agaaaacauc ccagaaaagu ggaccccaga agucaagcau uucuguccca 600

acgugcccau cauccugguu gggaauaaga aggaucuucg gaaugaugag cacacaaggc 660

gggagcuagc caagaugaag caggagccgg ugaaaccuga agaaggcaga gauauggcaa 720

acaggauugg cgcuuuuggg uacauggagu guucagcaaa gaccaaagau ggagugagag 780

agguuuuuga aauggcuacg agagcugcuc ugcaagcuag acgugggaag aaaaaaucug 840

ggugccuugu cuugugaaac cuugcugcaa gcacagcccu uaugcgguua auuuugaagu 900

gcuguuuauu aaucuuagug uaugauuacu ggccuuuuuc auuuaucuau aauuuaccua 960

agauuacaaa ucagaaguca ucuugcuacc aguauuuaga agccaacuau gauuauuaac 1020

gauguccaac ccgucuggcc caccaggguc cuuuugacac ugcucuaaca gcccuccucu 1080

gcacucccac cugacacacc aggcgcuaau ucaaggaauu ucuuaacuuc uugcuucuuu 1140

cuagaaagag aaacaguugg uaacuuuugu gaauuaggcu guaacuacuu uauaacuaac 1200

auguccugcc uauuaucugu cagcugcaag guacucuggu gagucaccac uucagggcuu 1260

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caaccagaaa agcccaaguu caugcagcug uggcagaguu acaguucugu gguuucaugu 1380

uaguuaccuu auaguuacug uguaauuagu gccacuuaau guauguuacc aaaaauaaau 1440

auaucuaccc cagacuagau guaguauuuu uuguauaauu ggauuuccua auacugucau 1500

ccucaaagaa aguguauugg uuuuuuaaaa aagaaagugu auuuggaaau aaagucagau 1560

ggaaaauuca uuuuuuaaau ucccguuuug ucacuuuuuc ugauaaaaga uggccauauu 1620

accccuuuuc ggccccaugu aucucaguac cccauggagc ugggcuaagu aaauaggaau 1680

ugguuucacg ccugaggcaa uuagacacuu uggaagaugg cauaaccugu cucaccugga 1740

cuuaagcauc uggcucuaau ucacagugcu cuuuucuccu cacuguaucc agguucccuc 1800

ccagaggagc caccaguucu cauggguggc acucagucuc ucuucucucc agcugacuaa 1860

acuuuuuuuc uguaccaguu aauuuuucca acuacuaaua gaauaaaggc aguuuucuaa 1920

aaaaa 1925

<210> 8
<211> 19
<212> RNA
<213> Artificial

<220>
<223> Chemically synthesized

<220>
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<222> (1)..(1)
<223> optional capping moiety covalently attached to position 1 (5') ribonucleotide

<220>
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<222> (19)..(19)
<223> optional 3' overhang moiety covalently attached to position 19 (3') ribonucleotide

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gccagaaugu ggaacuccu 19

<210> 9
<211> 19
<212> RNA
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<220>
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<220>
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ribonucleotide

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<210> 10
<211> 19
<212> RNA
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<220>
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<400> 10
uccuggaacu ucacaugaa 19

<210> 11
<211> 19
<212> RNA
<213> Artificial

<220>
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<400> 11
uucaugugaa guuccagga 19

<210> 12
<211> 19
<212> RNA
<213> Artificial

<220>
<223> Chemically synthesized

<400> 12
gcuacagaac ucaugaaua 19

<210> 13
<211> 19
<212> RNA
<213> Artificial

<220>
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<400> 13
uauucaugag uucuguagc 19

<210> 14
<211> 19
<212> RNA
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<220>
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<400> 14
gccacuuaau guauguuac 19

<210> 15
<211> 19
<212> RNA
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<220>
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<400> 15
guaacauaca uuaaguggc 19

<210> 16
<211> 21
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<220>
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<400> 16
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<210> 17
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<220>
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<400> 17
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<210> 18
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<220>
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<400> 18
gcacuccuga auuuuauca 19

<210> 19
<211> 19

<212> RNA
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<220>
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<400> 19
ugauaaaauu caggagugc 19

<210> 20
<211> 19
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<400> 20
gcacaggaaa ugcaagaga 19

<210> 21
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<220>
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<400> 21
ucucuugcau uuccugugc 19

<210> 22
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<400> 22
gggcuuguga uaugcacgu 19

<210> 23
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<212> RNA
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<220>
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<400> 23
acgugcauau cacaagccc 19

<210> 24
<211> 19
<212> RNA
<213> Artificial

<220>
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<220>
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<222> (1)..(1)
<223> optional capping moiety covalently attached to position 1 (5') ribonucleotide

<220>
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<222> (18)..(18)
<223> L-deoxycytidine

<220>
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<222> (19)..(19)
<223> optional 3' overhang moiety covalently attached to position 19 (3') ribonucleotide

<400> 24
gccagaaugu ggaacuccu 19

<210> 25
<211> 19
<212> RNA
<213> Artificial

<220>
<223> Chemically synthesized

<220>
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<222> (1)..(19)
<223> strand comprises at least five (5) alternating unmodified and 2'-O-methyl sugar modified ribonucleotides

<220>
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<222> (19)..(19)
<223> optional capping moiety covalently attached to position 9 (3') ribonucleotide

<400> 25
aggaguucca cauucuggc 19

<210> 26
<211> 19
<212> RNA

<213> Artificial

<220>
<223> Chemically synthesized

<220>
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<222> (1)..(1)
<223> inverted deoxyabasic moiety covalently attached to position 1 (5' ) ribonucleotide

<220>
<221> misc_feature
<222> (18)..(18)
<223> L-deoxycytidine

<400> 26
gccagaaugu ggaacuccu 19

<210> 27
<211> 19
<212> RNA
<213> Artificial

<220>
<223> Chemically synthesized

<220>
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<223> 2'O-methyl sugar modified ribonucleotide

<220>
<221> misc_feature
<222> (4)..(4)
<223> 2'O-methyl sugar modified ribonucleotide

<220>
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<222> (6)..(6)
<223> 2'O-methyl sugar modified ribonucleotide

<220>
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<222> (8)..(8)
<223> 2'O-methyl sugar modified ribonucleotide

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<221> misc_feature
<222> (11)..(11)
<223> 2'O-methyl sugar modified ribonucleotide

<220>
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<222> (13)..(13)

<223> 2'O-methyl sugar modified ribonucleotide

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<222> (15)..(15)
<223> 2'O-methyl sugar modified ribonucleotide

<220>
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<222> (17)..(17)
<223> 2'O-methyl sugar modified ribonucleotide

<220>
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<222> (19)..(19)
<223> 2'O-methyl sugar modified ribonucleotide

<400> 27
aggaguucca cauucuggc 19