

## Supplemental Data S1: Sequences (5'—3') for oligonucleotide RNA FISH

Sequence	Sequence Name	Scale	Purification	Three Modificatic	MW Backbone
agtccagcagaacgttaaaa	nanog-pmc-mrna_1	30 nmol	Desalted	T(CAL Fluor Red	7293.03
aataacatgaggcaaccaggc	nanog-pmc-mrna_2	30 nmol	Desalted	T(CAL Fluor Red	7278.01
ggataaagtgagttgcctgc	nanog-pmc-mrna_3	30 nmol	Desalted	T(CAL Fluor Red	7347.04
taggacctccagaaggaaaa	nanog-pmc-mrna_4	30 nmol	Desalted	T(CAL Fluor Red	7318.04
ggtaaggcagcttaagac	nanog-pmc-mrna_5	30 nmol	Desalted	T(CAL Fluor Red	7331.04
ggatccacactcatgttagt	nanog-pmc-mrna_6	30 nmol	Desalted	T(CAL Fluor Red	7241.97
aaggcaagctttggggacaa	nanog-pmc-mrna_7	30 nmol	Desalted	T(CAL Fluor Red	7365.06
ctttacagtcggatgctca	nanog-pmc-mrna_8	30 nmol	Desalted	T(CAL Fluor Red	7232.96
aatcacaggcataggtgaag	nanog-pmc-mrna_9	30 nmol	Desalted	T(CAL Fluor Red	7349.06
ggatagttttctcaggccc	nanog-pmc-mrna_10	30 nmol	Desalted	T(CAL Fluor Red	7248.96
agcagaagacatttgaagg	nanog-pmc-mrna_11	30 nmol	Desalted	T(CAL Fluor Red	7349.06
cagtctccgtgtgaggcatc	nanog-pmc-mrna_12	30 nmol	Desalted	T(CAL Fluor Red	7258.95
gctgtcctgaataagcagat	nanog-pmc-mrna_13	30 nmol	Desalted	T(CAL Fluor Red	7291.01
cgacactattctctcgagaa	nanog-pmc-mrna_14	30 nmol	Desalted	T(CAL Fluor Red	7210.95
gtttctgactgggaccttg	nanog-pmc-mrna_15	30 nmol	Desalted	T(CAL Fluor Red	7279.98
ggaagagaacacagttctgg	nanog-pmc-mrna_16	30 nmol	Desalted	T(CAL Fluor Red	7365.06
cattgagtacacacagctgg	nanog-pmc-mrna_17	30 nmol	Desalted	T(CAL Fluor Red	7275.99
tgttgagagttcttgcac	nanog-pmc-mrna_18	30 nmol	Desalted	T(CAL Fluor Red	7304.01
cctgtttgtagctgaggttc	nanog-pmc-mrna_19	30 nmol	Desalted	T(CAL Fluor Red	7279.98
cattctctggttctggaacc	nanog-pmc-mrna_20	30 nmol	Desalted	T(CAL Fluor Red	7208.93
tattctcggccagttgttt	nanog-pmc-mrna_21	30 nmol	Desalted	T(CAL Fluor Red	7229.96
catccctggtgtaggaaga	nanog-pmc-mrna_22	30 nmol	Desalted	T(CAL Fluor Red	7332.02
gaaggttcccagtcgggttc	nanog-pmc-mrna_23	30 nmol	Desalted	T(CAL Fluor Red	7298.98
caggctctggtgtccacat	nanog-pmc-mrna_24	30 nmol	Desalted	T(CAL Fluor Red	7233.94
gtgtctccaggtgaattgt	nanog-pmc-mrna_25	30 nmol	Desalted	T(CAL Fluor Red	7304.01
ctccaggactggatgttctg	nanog-pmc-mrna_26	30 nmol	Desalted	T(CAL Fluor Red	7273.97
caggctgagtggtccagga	nanog-pmc-mrna_27	30 nmol	Desalted	T(CAL Fluor Red	7323.01
ctgattgtccaggattggg	nanog-pmc-mrna_28	30 nmol	Desalted	T(CAL Fluor Red	7329.02
tatagaagggactgttccag	nanog-pmc-mrna_29	30 nmol	Desalted	T(CAL Fluor Red	7331.04
ggactgcagagattctctc	nanog-pmc-mrna_30	30 nmol	Desalted	T(CAL Fluor Red	7242.95
aaagcagcctcaagtcact	nanog-pmc-mrna_31	30 nmol	Desalted	T(CAL Fluor Red	7204.94
tgctgtattacattaaggcc	nanog-pmc-mrna_32	30 nmol	Desalted	T(CAL Fluor Red	7256.99
atccatggtttgtggagtac	nanog-pmc-mrna_33	30 nmol	Desalted	T(CAL Fluor Red	7313.02
catctcacagcttccagg	nanog-pmc-mrna_34	30 nmol	Desalted	T(CAL Fluor Red	7177.91
ccagtgccagactgaaatt	nanog-pmc-mrna_35	30 nmol	Desalted	T(CAL Fluor Red	7250.98
atcatggaaccagaacacg	nanog-pmc-mrna_36	30 nmol	Desalted	T(CAL Fluor Red	7278.01
cctccatgagattgactgga	nanog-pmc-mrna_37	30 nmol	Desalted	T(CAL Fluor Red	7266.98
tgattaggctccaaccatac	nanog-pmc-mrna_38	30 nmol	Desalted	T(CAL Fluor Red	7210.95
tcaatgttctcttagcagc	nanog-pmc-mrna_39	30 nmol	Desalted	T(CAL Fluor Red	7232.96
tatctatagccagagacggc	nanog-pmc-mrna_40	30 nmol	Desalted	T(CAL Fluor Red	7275.99
tgaggttagattctaacc	nanog-pmc-mrna_41	30 nmol	Desalted	T(CAL Fluor Red	7266
agtatgttacagcttaacc	nanog-pmc-mrna_42	30 nmol	Desalted	T(CAL Fluor Red	7225.97
caaaacagagcaaaaacg	nanog-pmc-mrna_43	30 nmol	Desalted	T(CAL Fluor Red	7296.03
acaaccaacaattagggga	nanog-pmc-mrna_44	30 nmol	Desalted	T(CAL Fluor Red	7302.04
gcagcaatacaagacctct	nanog-pmc-mrna_45	30 nmol	Desalted	T(CAL Fluor Red	7228.97
gtagtactcatgcattacg	nanog-pmc-mrna_46	30 nmol	Desalted	T(CAL Fluor Red	7256.99
ctcggtgaaatcagggtaaa	nanog-pmc-mrna_47	30 nmol	Desalted	T(CAL Fluor Red	7340.05
agctgtatatttactcatcg	nanog-pmc-mrna_48	30 nmol	Desalted	T(CAL Fluor Red	7231.98

Sequence	Sequence Name	Scale	Purification	Three Modificatic MW Backbone
acagacaccaatggttgag	cdx2-pmc-mrna_1	30 nmol	Desalted	T(CAL Fluor Red 7325.03
acaagactctattagtaatg	cdx2-pmc-mrna_2	30 nmol	Desalted	T(CAL Fluor Red 7274.03
cctccgtgattaacgagtg	cdx2-pmc-mrna_3	30 nmol	Desalted	T(CAL Fluor Red 7257.97
ggtccgggagcagacctcac	cdx2-pmc-mrna_4	30 nmol	Desalted	T(CAL Fluor Red 7277.95
gaggtagctcacgtacatgg	cdx2-pmc-mrna_5	30 nmol	Desalted	T(CAL Fluor Red 7332.02
ctgacgaagtctcgggcgc	cdx2-pmc-mrna_6	30 nmol	Desalted	T(CAL Fluor Red 7283.96
acgtggaaccgcgtagtc	cdx2-pmc-mrna_7	30 nmol	Desalted	T(CAL Fluor Red 7267.96
gactgcgcgtgtccaagtt	cdx2-pmc-mrna_8	30 nmol	Desalted	T(CAL Fluor Red 7258.95
atacgtgccggccaggatg	cdx2-pmc-mrna_9	30 nmol	Desalted	T(CAL Fluor Red 7292.97
ctgctgtagccatggctgc	cdx2-pmc-mrna_10	30 nmol	Desalted	T(CAL Fluor Red 7234.92
cgtttcgagcagcccagaag	cdx2-pmc-mrna_11	30 nmol	Desalted	T(CAL Fluor Red 7276.97
gtttcacttgctgccgag	cdx2-pmc-mrna_12	30 nmol	Desalted	T(CAL Fluor Red 7264.96
tcgatattgtcttctgcc	cdx2-pmc-mrna_13	30 nmol	Desalted	T(CAL Fluor Red 7189.93
gctgggtgccgtgtacacc	cdx2-pmc-mrna_14	30 nmol	Desalted	T(CAL Fluor Red 7274.95
ctttcctcggatggtgatg	cdx2-pmc-mrna_15	30 nmol	Desalted	T(CAL Fluor Red 7264.96
tttaacctgcctctcagaga	cdx2-pmc-mrna_16	30 nmol	Desalted	T(CAL Fluor Red 7201.94
ttgtctgcggttctgaaa	cdx2-pmc-mrna_17	30 nmol	Desalted	T(CAL Fluor Red 7263.98
ctctgggacacttctcagag	cdx2-pmc-mrna_18	30 nmol	Desalted	T(CAL Fluor Red 7242.95
gggaagacaccggactcaag	cdx2-pmc-mrna_19	30 nmol	Desalted	T(CAL Fluor Red 7335.02
tgccgctgcagaaccgggtg	cdx2-pmc-mrna_20	30 nmol	Desalted	T(CAL Fluor Red 7268.94
catggctcagcctggaattg	cdx2-pmc-mrna_21	30 nmol	Desalted	T(CAL Fluor Red 7282.98
ctgaggagctagcagagtc	cdx2-pmc-mrna_22	30 nmol	Desalted	T(CAL Fluor Red 7332.02
ccaggctgtaggtctatgg	cdx2-pmc-mrna_23	30 nmol	Desalted	T(CAL Fluor Red 7314
gctcccattttctctgag	cdx2-pmc-mrna_24	30 nmol	Desalted	T(CAL Fluor Red 7159.89
atatttcttgaggcccaaa	cdx2-pmc-mrna_25	30 nmol	Desalted	T(CAL Fluor Red 7225.97
tggcagaaaaagccagatgg	cdx2-pmc-mrna_26	30 nmol	Desalted	T(CAL Fluor Red 7374.07
cggaggcttctgtctcctc	cdx2-pmc-mrna_27	30 nmol	Desalted	T(CAL Fluor Red 7200.9
ttctgccagtcggaatgaa	cdx2-pmc-mrna_28	30 nmol	Desalted	T(CAL Fluor Red 7266.98
gtgtggcagtcaggcaat	cdx2-pmc-mrna_29	30 nmol	Desalted	T(CAL Fluor Red 7323.01
cctgcagatctaggaagaga	cdx2-pmc-mrna_30	30 nmol	Desalted	T(CAL Fluor Red 7325.03
ctcggctctagccagaggtg	cdx2-pmc-mrna_31	30 nmol	Desalted	T(CAL Fluor Red 7283.96
ctggacctccgagggccatg	cdx2-pmc-mrna_32	30 nmol	Desalted	T(CAL Fluor Red 7268.94
cttccgcagtgtaaccttg	cdx2-pmc-mrna_33	30 nmol	Desalted	T(CAL Fluor Red 7217.94
agctttctatcttagctgcc	cdx2-pmc-mrna_34	30 nmol	Desalted	T(CAL Fluor Red 7183.92
gttctgcagctttggctcag	cdx2-pmc-mrna_35	30 nmol	Desalted	T(CAL Fluor Red 7279.98
ctgtgcatacaccagccaag	cdx2-pmc-mrna_36	30 nmol	Desalted	T(CAL Fluor Red 7220.94
caggcctggagtccaataac	cdx2-pmc-mrna_37	30 nmol	Desalted	T(CAL Fluor Red 7260.97
ctaaacaagtcctgttcgg	cdx2-pmc-mrna_38	30 nmol	Desalted	T(CAL Fluor Red 7226.95
gacatacattcagcccagag	cdx2-pmc-mrna_39	30 nmol	Desalted	T(CAL Fluor Red 7244.97
aggaagtcagggtggctct	cdx2-pmc-mrna_40	30 nmol	Desalted	T(CAL Fluor Red 7323.01
ctctggcttgatgttacac	cdx2-pmc-mrna_41	30 nmol	Desalted	T(CAL Fluor Red 7248.96
catggatccagaaggcttta	cdx2-pmc-mrna_42	30 nmol	Desalted	T(CAL Fluor Red 7291.01
tctgaaatctgaaagctca	cdx2-pmc-mrna_43	30 nmol	Desalted	T(CAL Fluor Red 7275.01
gcagacaaaatctgaagata	cdx2-pmc-mrna_44	30 nmol	Desalted	T(CAL Fluor Red 7317.06