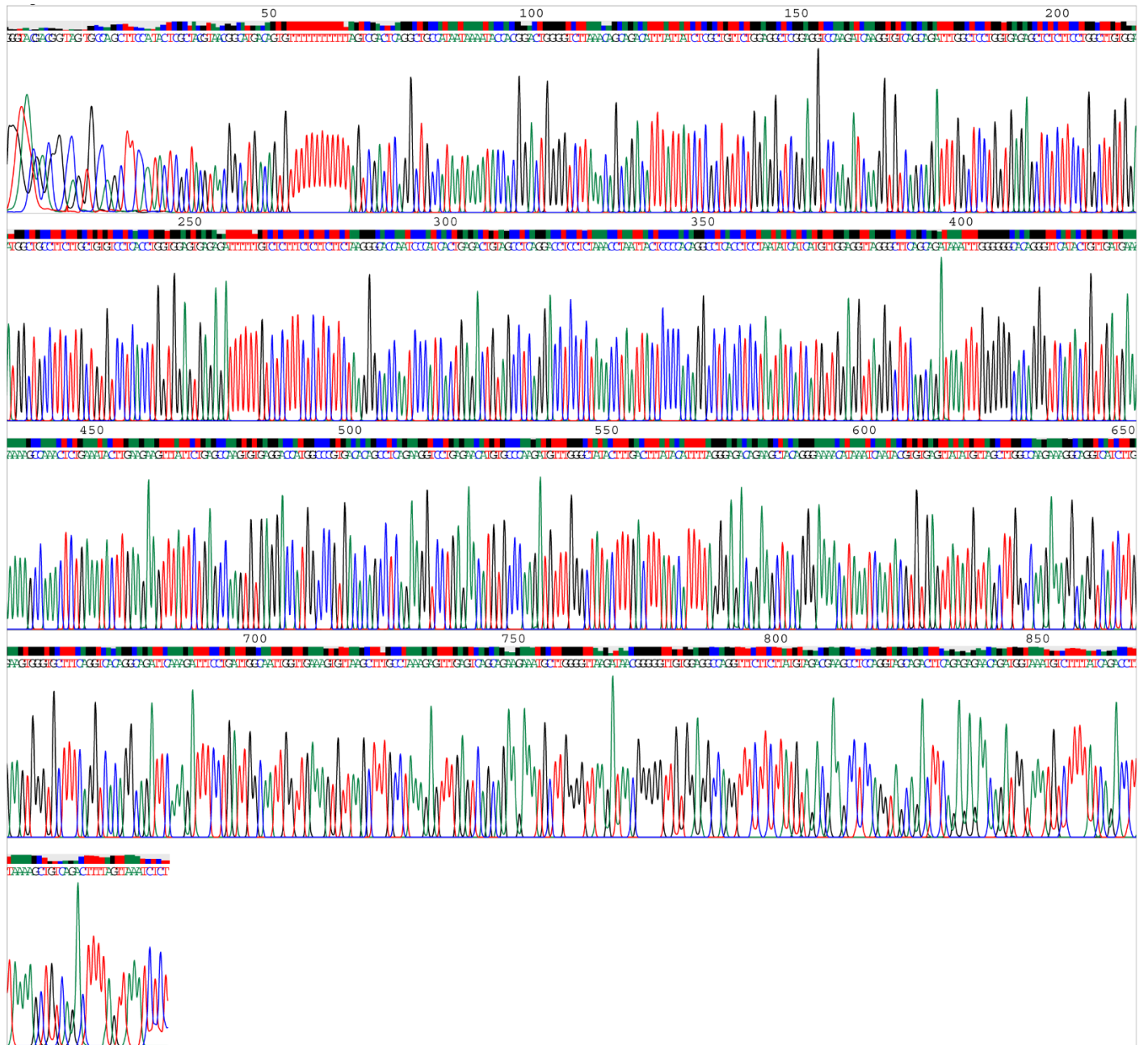
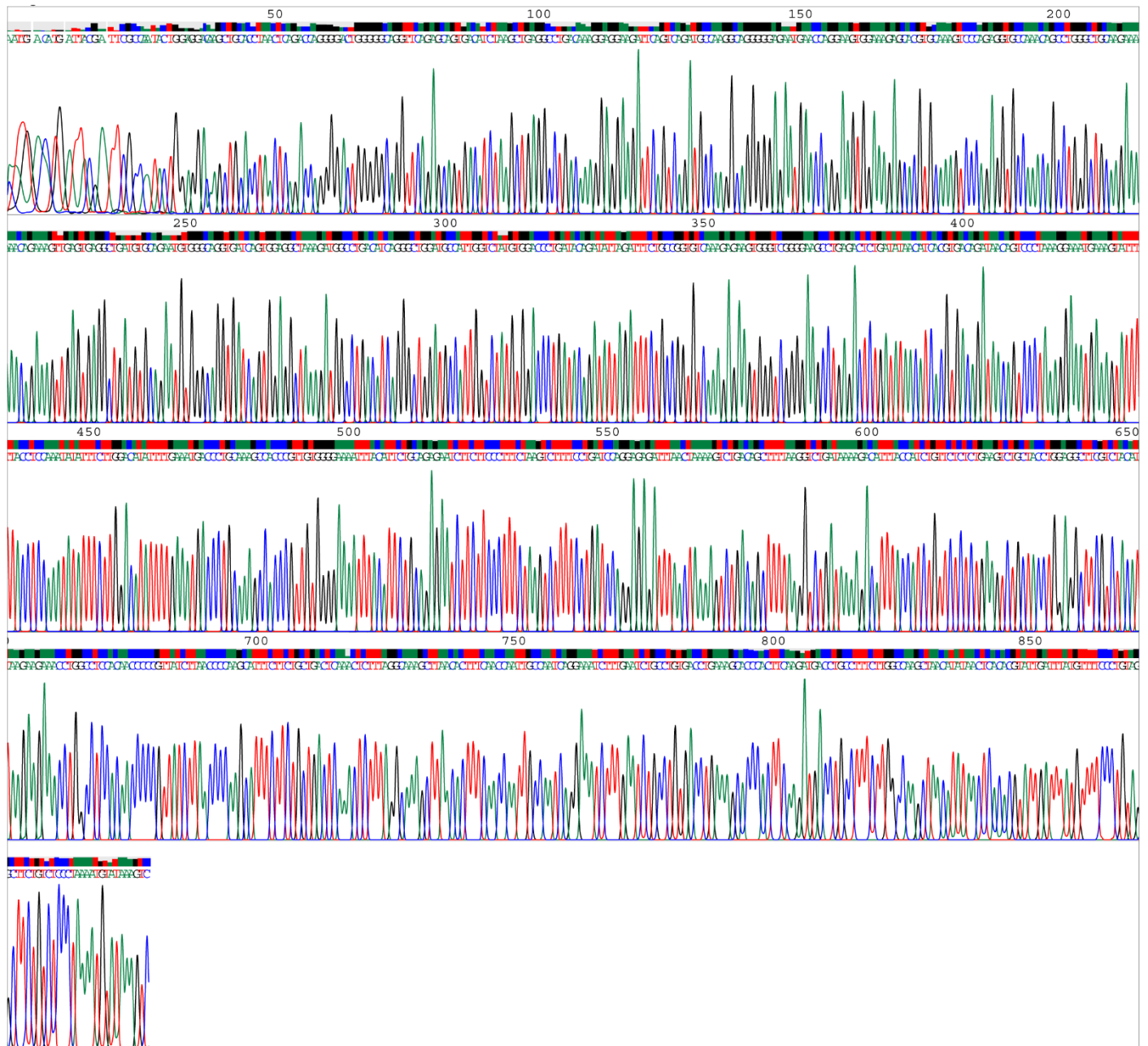


Supplementary Data 1 Rapid amplification of cDNA ends (RACE) analysis of seRNA-NPCM

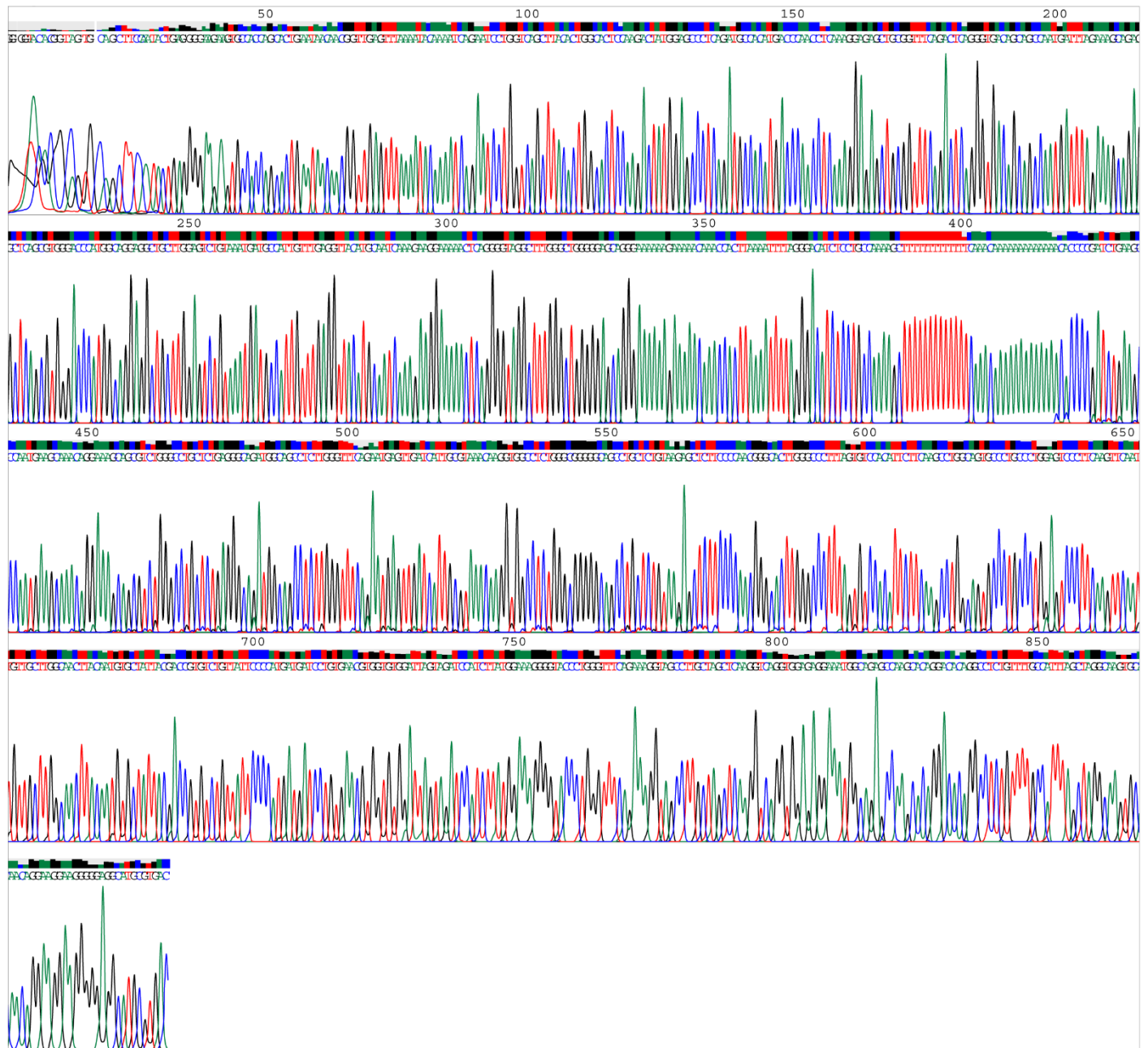
3'-RACE-F



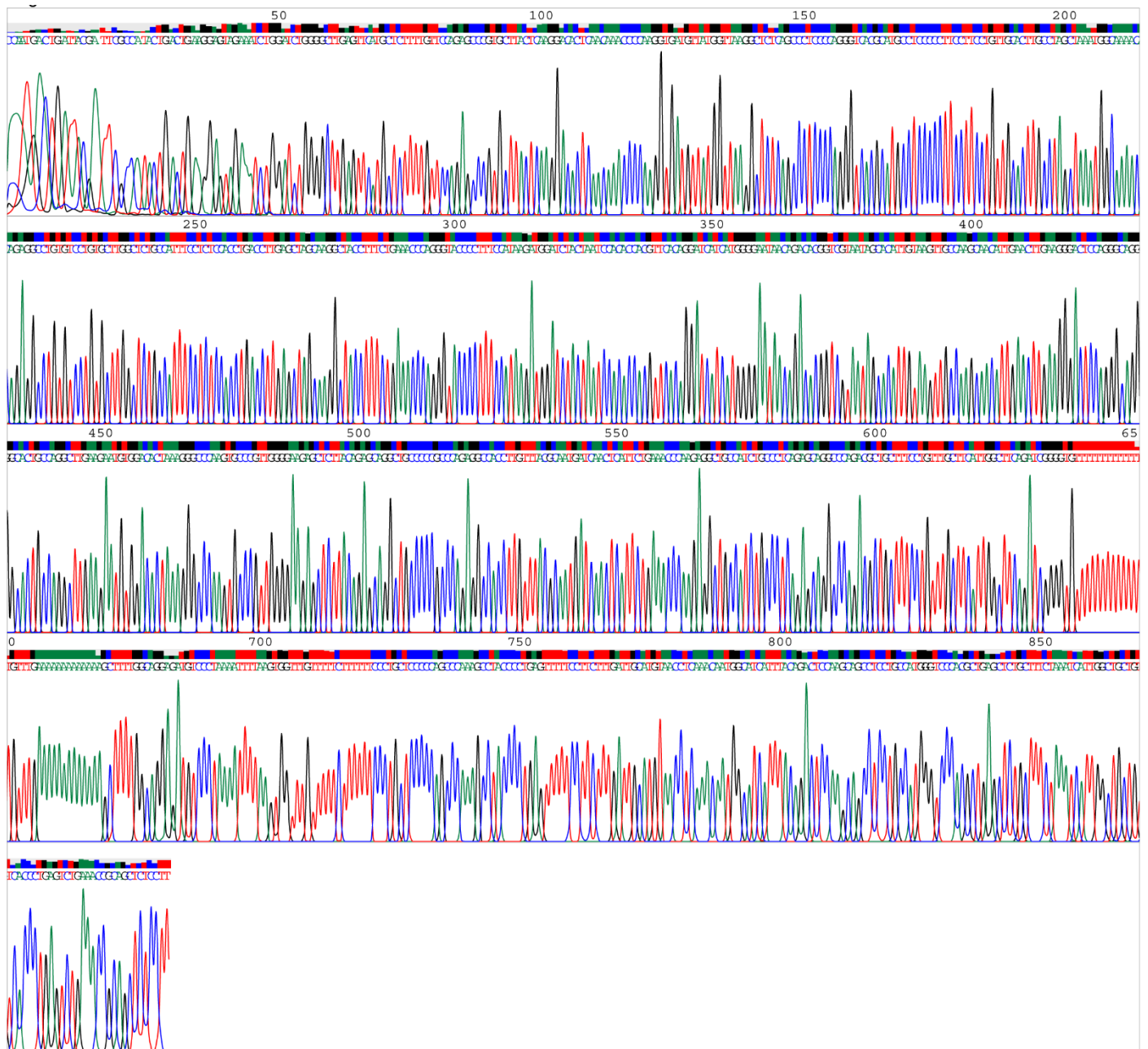
3'-RACE-R



5'-RACE-F



5'-RACE-R



[illegible]

[illegible]

Supplementary Data 2. Univariate and multivariate analysis of progression-free survival time in NPC patients

Univariate and multivariate analysis of progression-free survival time in NPC patients (Cox regression model)

| Variables | Univariate analysis | | Multivariate analysis | |
|--------------------------------------|---------------------|-----------------------|-----------------------|-----------------------|
| | P-value | HR(95% CI) | P-value | HR(95% CI) |
| Sex (male vs. female) | 0.731 | 0.926 (0.596-1.438) | | |
| Age (<50 vs. ≥50) | 0.017 | 1.735 (1.106-2.723) | 0.386 | 1.254 (0.752-2.091) |
| Pathologic_T (T1/T2 vs. T3/T4) | 0 | 4.133 (2.546-6.709) | 0.617 | 1.220 (0.559-2.661) |
| Pathologic_N (N0 vs. N1-3) | 0 | 5.024 (3.202-7.884) | 0.565 | 1.196 (0.650-2.199) |
| Pathologic_M (M0 vs. M1) | 0 | 5.462 (3.298-9.047) | 0.223 | 1.649 (0.737-3.690) |
| TNM (I/II vs. III/IV) | 0 | 8.556 (5.082-14.404) | 0.005* | 4.006 (1.520-10.561) |
| Tumor size (<1.2cm vs. ≥1.2cm) | 0.001 | 2.038 (1.314-3.162) | 0.37 | 1.262 (0.759-2.097) |
| Recurrence (yes vs. no) | 0 | 13.678 (8.124-23.028) | 0* | 14.306 (7.562-27.066) |
| seRNA-NPCm expression (low vs. high) | 0 | 2.528 (1.523-4.197) | 0.308 | 1.443 (0.713-2.919) |
| NDRG1 expression (low vs. high) | 0 | 2.713 (1.676-4.390) | 0.035* | 2.004 (1.048-3.832) |

* Statistically significant(p<0.05)

Supplementary Data 3. Information of oligonucleotides and primers used in the study.

For qRT-PCR

| <u>Name</u> | <u>Sequence</u> |
|--------------|----------------------------|
| GAPDH_F | ACAGCCTCAAGATCATCAGC |
| GAPDH_R | GGTCATGAGTCCTTCCACGAT |
| XIST_F | AGCAGGTCAGGCAGAGGAAGTC |
| XIST_R | CCCGATACAACAATCACGCAAAGC |
| NDRG1_F | GAAAAGCATTATTGGCATGGGA |
| NDRG1_R | CACAAGGGTTCACGTTGATAAG |
| c-Myc_F | CGACGAGACCTTCATCAAAAAC |
| c-Myc_R | CTTCTCTGAGACGAGCTTGG |
| NPM1_F | GTGGAGGAAGATGCAGAGTCAGAAG |
| NPM1_R | TCCAGGGGCAGACCGCTTTC |
| △seRNA-1_F | TGTGTCTCCAAGGTTCTCAGCATTC |
| △seRNA-1_R | GACCCCTGGCTCTCTACACCTCTAAG |
| △seRNA-2_F | CTGTGTCCTGTGCTTGGCTCTG |
| △seRNA-2_R | ATGATGATCCTGTGAACGTGGTGTG |
| △seRNA-3_F | CTGTGTCCTGTGCTTGGCTCTG |
| △seRNA-3_R | ATGATGATCCTGTGAACGTGGTGTG |
| seRNA-NPCm_F | CTGTGTCCTGTGCTTGGCTCTG |
| seRNA-NPCm_R | ATGATGATCCTGTGAACGTGGTGTG |

For RACE cloning

| <u>Name</u> | <u>Sequence</u> |
|------------------------------|-----------------------------|
| seRNA-NPCm_5' RACE_R1 | GTCAGGAGTGTGAGGGTTAGACCCATT |
| seRNA-NPCm_5' RACE_R2 | GAGGGGAAGAAGTGCCACCAGCACTGA |
| seRNA-NPCm_3' RACE_F1 | GGGTTGCTGGTGCATTTCAGGAGTCA |
| seRNA-NPCm_3' RACE_F2 | GGACAAGCTGCACCTAACTCAGACCA |
| seRNA-NPCm_middle fragment_F | CTCTCCTTTGAGGTTGGGTCAT |
| seRNA-NPCm_middle fragment_R | CTGCCTTGGCATCTGACTGAAT |

For seRNA-NPCm RNA pull-down

| <u>Name</u> | <u>Sequence</u> |
|-------------|-----------------|
|-------------|-----------------|

| | |
|-----------------------------|-------------------------------------|
| seRNA-NPCm (1-3496)_F | TAATACGACTCACTATAGGGTCTGGATCTGGGGCT |
| seRNA-NPCm (1-3496)_R | AGTCGACTCAGGCTGCCATAATAAAATACCACGGA |
| seRNA-NPCm (1-3496) AS_F | TAATACGACTCACTATAGGGAGTCGACTCAGGCTG |
| seRNA-NPCm (1-3496) AS_R | TCTGGATCTGGGGCTTGAGTTCATGCTCTTTTGT |
| seRNA-NPCm (1-960)_F | TAATACGACTCACTATAGGGTCTGGATCTGGGGCT |
| seRNA-NPCm (1-960)_R | ACTGAATAACAACGGTTGAG |
| seRNA-NPCm (1-960) AS_F | TAATACGACTCACTATAGGGACTGAATAACAACGG |
| seRNA-NPCm (1-960) AS_R | TCTGGATCTGGGGCTTGAGTTCATGCTCTTTTGT |
| seRNA-NPCm (961-2260)_F | TAATACGACTCACTATAGGGGCTGGTGGCACTTCT |
| seRNA-NPCm (961-2260)_R | TCCACTTCCTGGTTCATTCTCCCCCTGCCTTGGCA |
| seRNA-NPCm (961-2260) AS_F | TAATACGACTCACTATAGGGTCCACTTCCTGGTTC |
| seRNA-NPCm (961-2260) AS_R | GCTGGTGGCACTTCTTCCCCCTCTTCCCAATGTG |
| seRNA-NPCm (2261-3496)_F | TAATACGACTCACTATAGGGAAGAGCACGTGCAAA |
| seRNA-NPCm (2261-3496)_R | AGTCGACTCAGGCTGCCATAATAAAATACCACGGA |
| seRNA-NPCm (2261-3496) AS_F | TAATACGACTCACTATAGGGAGTCGACTCAGGCTG |
| seRNA-NPCm (2261-3496) AS_R | AAGAGCACGTGCAAAGTCCCAGAGGTGCCAAAC |

For generation seRNA-NPCm KO cell

| <u>Name</u> | <u>Sequence</u> |
|-------------------------------|--------------------------|
| seRNA-NPCm sgRNA1 | ACTCAGTCCATCTAGTTTGG |
| seRNA-NPCm sgRNA2 | ACCCCCCTTTCTTTGGTAA |
| seRNA-NPCm sgRNA3 | CAACCCTCACCTCGCTCTAC |
| seRNA-NPCm sgRNA4 | ACGTGTTGCTGAGTCACCTC |
| seRNA-NPCm KO DNA Genotype_F1 | TGGAAGCATAGTTTGAGCCATGG |
| seRNA-NPCm KO DNA Genotype_R1 | GCATGGTGCAAATGATGCTGTATG |
| seRNA-NPCm KO DNA Genotype_F2 | TGCTGACACCTCTTGATCCAGC |
| seRNA-NPCm KO DNA Genotype_R2 | CCAGTGTCAGCCACAGTGC |

shRNA oligos for knockdown assays

| <u>Name</u> | <u>Sequence</u> |
|------------------------|---|
| sh-seRNA-NPCm#1 Top | GATCCCGCACATTGTAAGTTGCCAAGCCTCGAGGCTTGGCAACTTACAATGTGCTTTTTGGAT |
| sh-seRNA-NPCm#1 Bottom | AGCTATCCAAAAAGCACATTGTAAGTTGCCAAGCCTCGAGGCTTGGCAACTTACAATGTGCGG |
| sh-seRNA-NPCm#2 Top | GATCCCGGAAGATAACACTTTGCAAGACTCGAGTCTTGCAAAGTGTTATCTTCCTTTTTGGAT |

| | |
|------------------------|--|
| sh-seRNA-NPCm#2 Bottom | AGCTATCCAAAAAGGAAGATAAACACTTTGCAAGACTCGAGTCTTGCAAAGTGTTATCTTCCGG |
| sh-seRNA-NPCm#3 Top | GATCCCGCTGGATGCCATTGGTCTATGCTCGAGCATAGACCAATGGCATCCAGCTTTTTGGAT |
| sh-seRNA-NPCm#3 Bottom | AGCTATCCAAAAAGCTGGATGCCATTGGTCTATGCTCGAGCATAGACCAATGGCATCCAGCGG |
| sh-Myc#1 Top | CCGGGCTTCACCAACAGGAAGTATGCTCGAGCATAGTTCCTGTTGGTGAAGCTTTTTG |
| sh-Myc#1 Bottom | AATTCAAAAAGCTTCACCAACAGGAAGTATGCTCGAGCATAGTTCCTGTTGGTGAAGC |
| sh-Myc#2 Top | CCGGGGAAACGACGAGAACAGTTGACTCGAGTCAACTGTTCTCGTCGTTTCCTTTTTG |
| sh-Myc#2 Bottom | AATTCAAAAAGGAAACGACGAGAACAGTTGACTCGAGTCAACTGTTCTCGTCGTTTCC |
| sh-Myc#3 Top | CCGGGCTTGTACCTGCAGGATCTGACTCGAGTCAGATCCTGCAGGTACAAGCTTTTTG |
| sh-Myc#3 Bottom | AATTCAAAAAGCTTGTACCTGCAGGATCTGACTCGAGTCAGATCCTGCAGGTACAAGC |
| sh-NPM1#1 Top | CCGGGGACAAGAATCCTTCAAGAACTCGAGTTTCTTGAAGGATTCTTGTCTTTTTG |
| sh-NPM1#1 Bottom | AATTCAAAAAGGACAAGAATCCTTCAAGAACTCGAGTTTCTTGAAGGATTCTTGTCC |
| sh-NPM1#2 Top | CCGGAGGACAAGAATCCTTCAAGAACTCGAGTTCTTGAAGGATTCTTGTCTTTTTG |
| sh-NPM1#2 Bottom | AATTCAAAAAGGACAAGAATCCTTCAAGAACTCGAGTTCTTGAAGGATTCTTGTCT |
| sh-NPM1#3 Top | CCGGCTAAACACCAAAAAGGACCTACTCGAGTAGGTCTTTTGGTGTTTTAGTTTTG |
| sh-NPM1#3 Bottom | AATTCAAAAATAAAACACCAAAAAGGACCTACTCGAGTAGGTCTTTTGGTGTTTTAG |
| sh-NDRG1#1 Top | CCGGGCACATTGTGAATGACATGAACTCGAGTTCATGTCATTACCAATGTGCTTTTTG |
| sh-NDRG1#1 Bottom | AATTCAAAAAGCACATTGTGAATGACATGAACTCGAGTTCATGTCATTACCAATGTGC |
| sh-NDRG1#2 Top | CCGGTGCTCTAAACAACCCTGAGATCTCGAGATCTCAGGGTTGTTTAGAGCATTTTTG |
| sh-NDRG1#2 Bottom | AATTCAAAAATGCTCTAAACAACCCTGAGATCTCGAGATCTCAGGGTTGTTTAGAGCA |
| sh-NDRG1#3 Top | CCGGCCTGGAGTCCTTCAACAGTTTCTCGAGAACTGTTGAAGGACTCCAGGTTTTG |
| sh-NDRG1#3 Bottom | AATTCAAAAACCTGGAGTCCTTCAACAGTTTCTCGAGAACTGTTGAAGGACTCCAGG |

For ChIRP probe sets

| <u>Name</u> | <u>Sequence</u> | <u>Note</u> |
|---------------------|----------------------|-------------|
| seRNA-NPCm ChIRP_P1 | GGGCTCTGGAACAAAAGAGC | |
| seRNA-NPCm ChIRP_P2 | AACAGGAAGGAAGGGGGAGG | |
| seRNA-NPCm ChIRP_P3 | TAGCTCAAGGTCAGGTGGAG | |
| seRNA-NPCm ChIRP_P4 | TGATGATCCTGTGAACGTGG | |
| seRNA-NPCm ChIRP_P5 | ACATTCTTCAAGCCTGGCAG | |
| seRNA-NPCm ChIRP_P6 | TAAACAAGGTGGCCTCTGGG | |
| seRNA-NPCm ChIRP_P7 | GCAAACAGGAAAGCAGCGTC | |
| seRNA-NPCm ChIRP_P8 | AATTTTAGGGACATCTCCTG | |
| seRNA-NPCm ChIRP_P9 | ATTGTTTGAGGTTACATGCA | |

| | |
|----------------------|-----------------------|
| seRNA-NPCm ChIRP_P10 | GACAGCAGCCAATGATTTAG |
| seRNA-NPCm ChIRP_P11 | ACTGGCACTCCAAGACTATG |
| seRNA-NPCm ChIRP_P12 | AAGAGAGGGGAAGAAGTGCC |
| seRNA-NPCm ChIRP_P13 | TTATCAAGTCTCCCGGGAAA |
| seRNA-NPCm ChIRP_P14 | ACCACATACTATACATGTCA |
| seRNA-NPCm ChIRP_P15 | TAGACTCTAATGTGCTTCTC |
| seRNA-NPCm ChIRP_P16 | GTGAAGATCATTTTCAGTGT |
| seRNA-NPCm ChIRP_P17 | ACAGTGTGGTAGTCTCTTAG |
| seRNA-NPCm ChIRP_P18 | GTCTGTATTTGACTAATCCC |
| seRNA-NPCm ChIRP_P19 | AACTATTTTTCTGTGCCTCA |
| seRNA-NPCm ChIRP_P20 | TTCGTAGCATGGATTTTGGA |
| seRNA-NPCm ChIRP_P21 | CTCATCACAGGAGTTTATTC |
| seRNA-NPCm ChIRP_P22 | CCTCAGATTACTGGTTCTGA |
| seRNA-NPCm ChIRP_P23 | CATAGGAGGTGCTTCATGTA |
| seRNA-NPCm ChIRP_P24 | CAACTGCTATTCAGACGGTG |
| seRNA-NPCm ChIRP_P25 | TCTGAGTTAGGTGCAGCTTG |
| seRNA-NPCm ChIRP_P26 | CTTGGCATCTGACTGAATCT |
| seRNA-NPCm ChIRP_P27 | CCTCACTCAACTTTCTGTTT |
| seRNA-NPCm ChIRP_P28 | AATATCTGTATCAGGGTCCA |
| seRNA-NPCm ChIRP_P29 | TTCCTTTAGGGACTGTTATC |
| seRNA-NPCm ChIRP_P30 | GTAAATTTTCCCCACAACGG |
| seRNA-NPCm ChIRP_P31 | ACCTTAAAAGCTGTCAGACT |
| seRNA-NPCm ChIRP_P32 | AGATAACGGGGGTTGTGGAG |
| seRNA-NPCm ChIRP_P33 | GATTTCCCTGATTGGCAATTG |
| seRNA-NPCm ChIRP_P34 | CGTGTGAGTTATATGTTAGC |
| seRNA-NPCm ChIRP_P35 | CACAGGGTTCATACTGTTGA |
| seRNA-NPCm ChIRP_P36 | TCTAAACCTAATTACTCCCC |
| seRNA-NPCm ChIRP_P37 | CTGGTGGAGTGAGAGATTTT |
| seRNA-NPCm ChIRP_P38 | GACTCAGGCTGCCATAATAA |

For RNA-FISH probe sets

seRNA-NPCm FISH

Biotin-TEG-UGUCCUUGAGUAAGCACGGGCUCUGGAACA

For ChIRP-PCR RNA detection

| <u>Name</u> | <u>Sequence</u> |
|--------------|----------------------|
| seRNA-NPCm_F | CCCTGAGTCTGAAACCGCAG |
| seRNA-NPCm_R | ATGCCACATGACCCAACCTC |

For ChIRP-PCR DNA detection

| <u>Name</u> | <u>Sequence</u> |
|------------------|------------------------|
| ChIRP NDRG1-SE_F | TGGCTACTGCGTGTCTCCTGT |
| ChIRP NDRG1-SE_R | CCTTTTGCTATCCACTCCCTTT |

For ChIP-PCR

| <u>Name</u> | <u>Sequence</u> |
|---------------------------------------|-------------------------|
| Myc ChIP NDRG1-promoter_F | TCCGCCCCGGACGTAAACAAA |
| Myc ChIP NDRG1-promoter_R | TGAACTGACGAGCTTCAGCACCA |
| Myc ChIP positive (NPM1)_F | AAGATTAAGAGCGGCAAGAAGT |
| Myc ChIP positive (NPM1)_R | AAGGACATCGCCCTAAGAGAG |
| Myc ChIP negative (alpha-Satellite)_F | TCCCAGAGTTTCACATTGCT |
| Myc ChIP negative (alpha-Satellite)_R | GAAGATTCTCCCGTTTCCA |
| NPM1 ChIP NDRG1-promoter_F | TCCGCCCCGGACGTAAACAAA |
| NPM1 ChIP NDRG1-promoter_R | TGAACTGACGAGCTTCAGCACCA |
| NPM1 ChIP positive (FBP1-POS)_F | GGCCTGGCCCAGTTGCAC |
| NPM1 ChIP positive (FBP1-POS)_R | GTAGAGCGCGGGGCTGCA |
| NPM1 ChIP negative (FBP1-NEG)_F | TTAGCTCCTAATTGTCAGTCCTG |
| NPM1 ChIP negative (FBP1-NEG)_R | GGAGGTGGTGGATTCTGGAC |

For DRIP-PCR

| | |
|-----------------|------------------------|
| DRIP NDRG1-SE_F | GGATTTGGATGATGGAGGACTT |
| DRIP NDRG1-SE_R | CCACAGATTACCCAGGCACC |