**Table S1** Summary of unconservative miRNAs in *A. mongolicum*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Unconservative  miRNA | sequence | length（nt） | Precursor length（nt） | MFE（kcal/mol） | MFEI |
| amo-miR1 | cagguggacuccgaccgggcccg | 23 | 113 | -74.01 | 0.82 |
| amo-miR2 | auuuauuucaagcuauuucggauc | 24 | 113 | -19.69 | 0.66 |
| amo-miR5 | ggcggauguagccaagugga | 20 | 109 | -48.84 | 0.86 |
| amo-miR8 | uuccgaauuauuugacgcagc | 21 | 110 | -61.58 | 1.56 |
| amo-miR10 | cccgcaggcggacguggag | 19 | 109 | -72.12 | 0.85 |
| amo-miR11 | cucuguaacuaaauauaagac | 21 | 110 | -53.99 | 1.54 |
| amo-miR14 | cgcggcggcgggggcggug | 19 | 108 | -63.70 | 0.76 |
| amo-miR15 | gcgcuggcggacguggag | 18 | 108 | -50.33 | 0.64 |
| amo-miR16 | gacgagacgcugaggagc | 18 | 109 | -54.39 | 0.75 |
| amo-miR17 | cccaacgggcgguggggc | 18 | 111 | -66.15 | 0.81 |
| amo-miR18 | gauggcgcgcaggcggacg | 19 | 108 | -62.43 | 0.72 |
| amo-miR19 | ucggagaccaucacgagc | 18 | 112 | -53.80 | 0.69 |
| amo-miR20 | ccgucggcggcacggcca | 18 | 109 | -63.87 | 0.75 |
| amo-miR22 | gagacaaguaauucgggacgg | 21 | 91 | -58.99 | 1.47 |
| amo-miR23 | gcaggugacuugaguuagaug | 21 | 109 | -78.12 | 1.32 |
| amo-miR24 | acgucgucggcucggcca | 18 | 112 | -66.32 | 0.80 |
| amo-miR28 | uuaacugucucugaaaugagu | 21 | 111 | -55.41 | 1.32 |
| amo-miR29 | gacugaugucgguauggaaccagu | 24 | 110 | -41.70 | 0.76 |
| amo-miR32 | cuacgcgucggaugcacugcgu | 22 | 111 | -60.18 | 0.85 |
| amo-miR34 | agcggccgucgaugcagauca | 21 | 110 | -64.09 | 0.84 |
| amo-miR35 | aucaaggaauuugugagg | 18 | 108 | -59.86 | 1.33 |
| amo-miR42 | cgggcgcggccgaggcgcuggg | 22 | 111 | -72.72 | 0.77 |
| amo-miR43 | cgcggcgacgggggcgug | 18 | 108 | -61.76 | 0.74 |
| amo-miR45 | aucauccgccugauuuguagcagu | 24 | 114 | -50.66 | 0.90 |
| amo-miR46 | auccgucgugauaugaaaaccagc | 24 | 114 | -61.36 | 0.93 |
| amo-miR49 | cgccggagcugcaaugaagc | 20 | 109 | -62.25 | 0.93 |
| amo-miR52 | ucuuauauuuaggaauggagg | 21 | 92 | -61.24 | 1.61 |
| amo-miR58 | aagcccgucggcauagauaauaug | 24 | 113 | -58.63 | 0.89 |
| amo-miR59 | uggcgcggaugcuucggc | 18 | 87 | -49.45 | 0.84 |
| amo-miR61 | gcgcucucagccgccgccacgugu | 24 | 110 | -78.63 | 1.09 |
| amo-miR63 | uugcgucaaagguccuagau | 20 | 110 | -32.50 | 0.93 |
| amo-miR64 | ggagucgagcugugugugcuaugu | 24 | 114 | -51.10 | 0.80 |
| amo-miR65 | uuauauuauggaacggaggga | 21 | 100 | -50.52 | 1.74 |
| amo-miR66 | uccggcucggcggcgggggcggc | 23 | 113 | -75.90 | 0.86 |
| amo-miR67 | aggcgguggaggcgacggcgg | 21 | 108 | -69.01 | 0.85 |
| amo-miR70 | acccggguggagaagucgagg | 21 | 109 | -46.49 | 0.68 |
| amo-miR72 | cgcggcgccgcgggcggc | 18 | 108 | -61.23 | 0.82 |
| amo-miR73 | gacgucgcggccgcugca | 18 | 109 | -48.68 | 0.65 |
| amo-miR74 | gucgauggcaggugcugc | 18 | 112 | -52.49 | 0.67 |
| amo-miR75 | uugcaucgaccgugcucuu | 19 | 115 | -59.55 | 0.92 |
| amo-miR80 | ggggcuuugcgggaguccggacc | 23 | 109 | -60.75 | 0.79 |
| amo-miR81 | gggcggggcggucgucggc | 19 | 109 | -65.06 | 0.83 |
| amo-miR87 | cgcgcuccgcggcuggacgc | 20 | 111 | -45.74 | 0.56 |
| amo-miR88 | ucuuauccuauguugaacaguugga | 25 | 115 | -40.75 | 0.71 |
| amo-miR89 | caucaucagcggguucggg | 19 | 112 | -59.21 | 0.83 |
| amo-miR92 | cccucgccgccaggaaggac | 20 | 111 | -53.14 | 0.63 |
| amo-miR94 | cacugggcucuucccuggacacg | 23 | 108 | -65.32 | 0.92 |
| amo-miR95 | agaggcacuucgugcugugagacg | 24 | 114 | -44.69 | 0.78 |
| amo-miR97 | aagccuacagcggccggacgaccg | 24 | 114 | -47.63 | 0.63 |
| amo-miR98 | aucuacgagacgaaugcucagug | 23 | 113 | -41.10 | 0.72 |
| amo-miR99 | ccuuaugggacgucugcu | 18 | 108 | -45.79 | 0.78 |
| amo-miR100 | acucgacggcgcgaggggccu | 21 | 114 | -52.63 | 0.65 |
| amo-miR102 | gcugggggcucugguggug | 19 | 109 | -51.29 | 0.72 |
| amo-miR104 | ccgagacgggcuguagcagugacg | 24 | 111 | -54.59 | 0.69 |
| amo-miR105 | ccucgcggaagucgcucggauacgc | 25 | 112 | -47.74 | 0.65 |
| amo-miR106 | augggcuacaacucaggugaugug | 24 | 113 | -52.05 | 0.85 |
| amo-miR111 | agucaccaaggucgucaaggguggg | 25 | 108 | -48.86 | 0.72 |
| amo-miR112 | acggugaugaaggaacuc | 18 | 112 | -51.60 | 0.89 |
| amo-miR113 | cucgucaucgucuacgucg | 19 | 109 | -47.38 | 0.72 |
| amo-miR114 | gccggaggggcggggaaccccgg | 23 | 113 | -84.55 | 0.99 |
| amo-miR115 | cggcagcggucgucgucagcggcg | 24 | 114 | -58.63 | 0.71 |

**Table S2** Summary of conservative miRNAs in *A. mongolicum*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Conservative  miRNA | Homologous  miRNA | sequence | length（nt） | Precursor length（nt） | MFE（kcal/mol） | MFEI |
| amo-miR3 | bdi-miR5200 | uguagauacucccuaaggcuu | 21 | 110 | -48.34 | 1.10 |
| amo-miR4 | ath-miR159a | uuuggauugaagggagcucug | 21 | 110 | -35.31 | 0.67 |
| amo-miR6 | ath-miR167a | ugaagcugccagcaugaucuga | 22 | 111 | -71.78 | 1.24 |
| amo-miR7 | aly-miR400-3p | aacuuauagaggcgauucggu | 21 | 108 | -61.58 | 1.26 |
| amo-miR9 | ath-miR156a | ugacagaagagagagagcac | 20 | 108 | -33.33 | 0.53 |
| amo-miR12 | ahy-miR3518 | agaccuuuuggacucuggccauc | 23 | 112 | -75.00 | 1.14 |
| amo-miR13 | ath-miR157a | uugacagaagagagagagc | 19 | 108 | -41.93 | 0.66 |
| amo-miR21 | bdi-miR5180b | aaagugucguagaaaaaacuau | 22 | 111 | -32.73 | 1.09 |
| amo-miR25 | ahy-miR3516 | ucugggugugcuacugcu | 18 | 108 | -45.03 | 0.71 |
| amo-miR26 | ahy-miR3516 | ucugggugugcuacugcu | 18 | 108 | -51.55 | 0.78 |
| amo-miR27 | bdi-miR5181b | uccgauccauauuaauugaug | 21 | 93 | -68.50 | 1.90 |
| amo-miR30 | ath-miR5662 | ggaggugaacgccggcggcg | 20 | 106 | -46.93 | 0.76 |
| amo-miR31 | vvi-miR3631a-5p | cauguugacucuucugcaaggauag | 25 | 113 | -34.26 | 0.62 |
| amo-miR33 | ath-miR5027 | uccgguugugcuucuucu | 18 | 111 | -41.50 | 0.63 |
| amo-miR36 | hvu-miR6184 | cggcgucggcacggccgu | 18 | 108 | -51.60 | 0.69 |
| amo-miR37 | hvu-miR6184 | cggcgucggcacggccgu | 18 | 108 | -49.31 | 0.63 |
| amo-miR38 | osa-miR5809 | ccgucgccggcgcggccg | 18 | 108 | -59.48 | 0.75 |
| amo-miR39 | ppt-miR408b | ugcacugccucugcccuggc | 20 | 110 | -41.39 | 0.52 |
| amo-miR40 | bdi-miR7743-3p | uuugaacuggugguugaaugc | 21 | 110 | -42.76 | 0.82 |
| amo-miR41 | osa-miR2091-3p | aauacauuauggaacggagggagu | 24 | 93 | -40.09 | 1.29 |
| amo-miR44 | ath-miR854a | aaugaggaugauaacaagac | 20 | 110 | -34.09 | 0.62 |
| amo-miR47 | bdi-miR5199 | cguucauauuaugggacggag | 21 | 92 | -43.88 | 1.19 |
| amo-miR48 | bdi-miR5174 | cuccguuccaaaauaaguguc | 21 | 109 | -46.06 | 1.44 |
| amo-miR51 | ath-miR156a | ugacagaagagcgagagcac | 20 | 109 | -48.65 | 0.77 |
| amo-miR53 | csi-miR857 | auuugaaugugacuugcuagu | 21 | 111 | -31.15 | 0.80 |
| amo-miR54 | sbi-miR5568f-5p | uccauuccuaaauauaagacg | 21 | 94 | -66.55 | 1.71 |
| amo-miR55 | smo-miR1088-5p | gagaagaaacaauggcgc | 18 | 110 | -45.11 | 0.74 |
| amo-miR56 | ppt-miR1039-5p | ccuuugggccaaugacaugug | 21 | 114 | -88.46 | 1.21 |
| amo-miR57 | ppt-miR477h | acucccucuguaaacaaauguaag | 24 | 109 | -38.14 | 1.16 |
| amo-miR60 | ppt-miR898b | cugcugugaugauucugg | 18 | 108 | -34.32 | 0.67 |
| amo-miR62 | zma-miR164g-3p | cacgugcucgaugaaaugacu | 21 | 110 | -46.04 | 0.92 |
| amo-miR68 | bna-miR6029 | ugggguugcggaagguggagacgu | 24 | 108 | -66.41 | 0.86 |
| amo-miR69 | ppt-miR533a-5p | aagcuggccggccuguucggga | 22 | 109 | -46.33 | 0.70 |
| amo-miR71 | osa-miR5082 | cgcgaugauggccgcgcgggcuca | 24 | 112 | -59.57 | 0.78 |
| amo-miR76 | mtr-miR5292b | aauucagauuuuggucca | 18 | 108 | -39.63 | 0.83 |
| amo-miR77 | bdi-miR7725b-5p.2 | cugcuccagcugcucaugug | 20 | 108 | -66.79 | 1.04 |
| amo-miR78 | osa-miR2922 | aauaagugucgcagcuuugaacua | 24 | 104 | -46.69 | 1.11 |
| amo-miR79 | tae-miR5086 | ccauuggucccgguucguggc | 21 | 112 | -58.42 | 0.85 |
| amo-miR82 | bdi-miR5066 | gaguguaugcccguauauaugagc | 24 | 114 | -33.62 | 0.69 |
| amo-miR83 | osa-miR1850.2 | uuguguguaaaagguagauguggc | 24 | 112 | -35.59 | 0.73 |
| amo-miR84 | mtr-miR5281b | ucuuauaauuugggacagagg | 21 | 111 | -63.92 | 1.64 |
| amo-miR85 | osa-miR810b.1 | ugaacacccggaagaagaccg | 21 | 108 | -42.51 | 0.61 |
| amo-miR86 | bdi-miR5200 | uguagauauucacuaaggcuc | 21 | 109 | -50.28 | 1.12 |
| amo-miR90 | gma-miR1516b | agcuucucaaaaccuguuucuu | 22 | 105 | -30.26 | 0.67 |
| amo-miR91 | aly-miR165a-5p | aaauguugugcaugucguugauacu | 25 | 115 | -43.10 | 0.90 |
| amo-miR93 | zma-miR482-3p | acuuccuucgucucaaaauaagug | 24 | 111 | -47.47 | 1.36 |
| amo-miR96 | sbi-miR5568a | gagagcgauugauagcggauuu | 22 | 112 | -35.88 | 0.70 |
| amo-miR101 | vvi-miR3629a-3p | cgcugcuguuguagccuccc | 20 | 110 | -49.45 | 0.80 |
| amo-miR103 | ptc-miR169b-3p | agcagguucucaggacaacaua | 22 | 112 | -41.32 | 0.71 |
| amo-miR107 | osa-miR169f.2 | ggaggacaggaacauuuggaaag | 23 | 110 | -34.21 | 0.76 |
| amo-miR108 | smo-miR1088-3p | acgugcucagcuucuccaacc | 21 | 111 | -47.33 | 0.70 |
| amo-miR109 | osa-miR2927 | cgucgucggcggcggccgcc | 20 | 108 | -60.21 | 0.78 |
| amo-miR110 | ptc-miR482c-5p | caugggagagggccagcgag | 20 | 110 | -41.22 | 0.62 |