**Supplementary Table S4 Binding sites of Ago2 protein in circVMA21**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Circular RNA | Tag Name | % Identity | Alignment Length | Mismatches | Gap Openings | Tag Start | Tag End | Circular RNA Start | Circular RNA ENd |
| hsa\_circ\_0091702 | HPSEF\_24049\_G29182.1\_150573551\_46 | 100 | 46 | 0 | 0 | 1 | 46 | 138 | 183 |
| hsa\_circ\_0091702 | HPSLC\_20813\_G24865.1\_150573551\_51 | 100 | 51 | 0 | 0 | 1 | 51 | 138 | 188 |
| hsa\_circ\_0091702 | HPCB1\_43214\_G55383.1\_150573551\_36 | 100 | 36 | 0 | 0 | 1 | 36 | 147 | 182 |
| hsa\_circ\_0091702 | HPSLB\_7903\_G9686.1\_150573551\_40 | 100 | 40 | 0 | 0 | 1 | 40 | 147 | 186 |
| hsa\_circ\_0091702 | HPCB3\_25062\_G34522.1\_150573551\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 147 | 187 |
| hsa\_circ\_0091702 | HHFKP\_155668\_cluster-24110\_1\_140\_38 | 100 | 38 | 0 | 0 | 1 | 38 | 484 | 521 |
| hsa\_circ\_0091702 | HPKTA\_64287\_G69577.1\_150573902\_29 | 100 | 29 | 0 | 0 | 1 | 29 | 504 | 532 |
| hsa\_circ\_0091702 | HHFCT\_169164\_cluster-24110\_2\_171\_24 | 100 | 24 | 0 | 0 | 1 | 24 | 552 | 575 |
| hsa\_circ\_0091702 | HPSLC\_20816\_G24868.1\_150574077\_23 | 100 | 23 | 0 | 0 | 1 | 23 | 672 | 694 |
| hsa\_circ\_0091702 | HHFKP\_155669\_cluster-24110\_2\_374\_40 | 100 | 40 | 0 | 0 | 1 | 40 | 786 | 825 |
| hsa\_circ\_0091702 | HPRT3\_27040\_G36281.1\_150574532\_43 | 100 | 43 | 0 | 0 | 1 | 43 | 1126 | 1168 |
| hsa\_circ\_0091702 | HHFKP\_155670\_cluster-24110\_3\_133\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 1128 | 1168 |
| hsa\_circ\_0091702 | HPSLB\_7904\_G9687.1\_150574532\_32 | 100 | 32 | 0 | 0 | 1 | 32 | 1134 | 1165 |
| hsa\_circ\_0091702 | HPTK7\_8166\_G12315.1\_150574532\_33 | 100 | 33 | 0 | 0 | 1 | 33 | 1134 | 1166 |
| hsa\_circ\_0091702 | HPTK1\_31020\_G37240.1\_150574532\_34 | 100 | 34 | 0 | 0 | 1 | 34 | 1134 | 1167 |
| hsa\_circ\_0091702 | HPCB1\_43217\_G55386.1\_150574532\_35 | 100 | 35 | 0 | 0 | 1 | 35 | 1134 | 1168 |
| hsa\_circ\_0091702 | HHFCT\_169166\_cluster-24110\_5\_535\_40 | 100 | 40 | 0 | 0 | 1 | 40 | 1298 | 1337 |
| hsa\_circ\_0091702 | HPRT3\_27041\_G36282.1\_150575174\_30 | 100 | 30 | 0 | 0 | 1 | 30 | 1771 | 1800 |
| hsa\_circ\_0091702 | HPKTA\_64293\_G69583.1\_150575174\_39 | 100 | 39 | 0 | 0 | 1 | 39 | 1771 | 1809 |
| hsa\_circ\_0091702 | HHFKP\_155671\_cluster-24110\_4\_124\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 1811 | 1851 |
| hsa\_circ\_0091702 | HHFKP\_155672\_cluster-24110\_6\_315\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 1861 | 1901 |
| hsa\_circ\_0091702 | HHFKP\_155673\_cluster-24110\_7\_190\_38 | 100 | 38 | 0 | 0 | 1 | 38 | 2085 | 2122 |
| hsa\_circ\_0091702 | HPCB3\_25065\_G34525.1\_150575553\_32 | 100 | 32 | 0 | 0 | 1 | 32 | 2135 | 2166 |
| hsa\_circ\_0091702 | HHRBL\_15714\_BCBL1-2of3-SCL\_1749\_101 | 100 | 101 | 0 | 0 | 1 | 101 | 2163 | 2263 |
| hsa\_circ\_0091702 | HHFKP\_155674\_cluster-24110\_8\_354\_62 | 100 | 62 | 0 | 0 | 1 | 62 | 2204 | 2265 |
| hsa\_circ\_0091702 | HPRT3\_27043\_G36285.1\_150575688\_27 | 100 | 27 | 0 | 0 | 1 | 27 | 2287 | 2313 |
| hsa\_circ\_0091702 | HPTK1\_31023\_G37243.1\_150575698\_24 | 100 | 24 | 0 | 0 | 1 | 24 | 2288 | 2311 |
| hsa\_circ\_0091702 | HPKTA\_64294\_G69585.1\_150575700\_26 | 100 | 26 | 0 | 0 | 1 | 26 | 2288 | 2313 |
| hsa\_circ\_0091702 | HPKMA\_15442\_G17845.1\_150575843\_28 | 100 | 28 | 0 | 0 | 1 | 28 | 2438 | 2465 |
| hsa\_circ\_0091702 | HPKMB\_8381\_G9611.1\_150575842\_24 | 100 | 24 | 0 | 0 | 1 | 24 | 2442 | 2465 |
| hsa\_circ\_0091702 | HHFKP\_155676\_cluster-24110\_10\_291\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 2452 | 2492 |
| hsa\_circ\_0091702 | HPKTA\_64296\_G69587.1\_150575881\_30 | 100 | 30 | 0 | 0 | 1 | 30 | 2476 | 2505 |
| hsa\_circ\_0091702 | HPKTA\_64297\_G69588.1\_150575908\_27 | 100 | 27 | 0 | 0 | 1 | 27 | 2505 | 2531 |
| hsa\_circ\_0091702 | HHFKP\_155677\_cluster-24110\_11\_73\_27 | 100 | 27 | 0 | 0 | 1 | 27 | 2519 | 2545 |
| hsa\_circ\_0091702 | HHFCT\_169172\_cluster-24110\_11\_199\_46 | 100 | 46 | 0 | 0 | 1 | 46 | 2524 | 2569 |
| hsa\_circ\_0091702 | HPKTA\_64298\_G69588.2\_150575933\_30 | 100 | 30 | 0 | 0 | 1 | 30 | 2532 | 2561 |
| hsa\_circ\_0091702 | HHRBL\_15715\_BCBL1-2of3-SCL\_92\_164 | 100 | 164 | 0 | 0 | 1 | 164 | 2561 | 2724 |
| hsa\_circ\_0091702 | HHRBC\_14128\_BC3-2of3-SCL\_267\_88 | 100 | 88 | 0 | 0 | 1 | 88 | 2597 | 2684 |
| hsa\_circ\_0091702 | HHFCT\_169173\_cluster-24110\_12\_157\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 2626 | 2666 |
| hsa\_circ\_0091702 | HPSD3\_10725\_G14583.1\_150576095\_32 | 100 | 32 | 0 | 0 | 1 | 32 | 2697 | 2728 |
| hsa\_circ\_0091702 | HPRT3\_27044\_G36286.1\_150576119\_27 | 100 | 27 | 0 | 0 | 1 | 27 | 2715 | 2741 |
| hsa\_circ\_0091702 | HPCB1\_43220\_G55389.1\_150576104\_26 | 100 | 26 | 0 | 0 | 1 | 26 | 2716 | 2741 |
| hsa\_circ\_0091702 | HPCB1\_43221\_G55390.1\_150576831\_26 | 100 | 26 | 0 | 0 | 1 | 26 | 3419 | 3444 |
| hsa\_circ\_0091702 | HHFKP\_155678\_cluster-24110\_12\_181\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 3515 | 3555 |
| hsa\_circ\_0091702 | HHFKP\_155679\_cluster-24110\_13\_240\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 3595 | 3635 |
| hsa\_circ\_0091702 | HPKTA\_64300\_G69590.1\_150577066\_31 | 100 | 31 | 0 | 0 | 1 | 31 | 3664 | 3694 |
| hsa\_circ\_0091702 | HPTK1\_31026\_G37245.1\_150577075\_24 | 100 | 24 | 0 | 0 | 1 | 24 | 3665 | 3688 |
| hsa\_circ\_0091702 | HPCB1\_43222\_G55391.1\_150577229\_29 | 100 | 29 | 0 | 0 | 1 | 29 | 3825 | 3853 |
| hsa\_circ\_0091702 | HHFKP\_155681\_cluster-24110\_15\_225\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 3864 | 3904 |
| hsa\_circ\_0091702 | HHFCT\_169174\_cluster-24110\_13\_59\_58 | 100 | 58 | 0 | 0 | 1 | 58 | 3874 | 3931 |
| hsa\_circ\_0091702 | HPCB1\_43223\_G55392.1\_150577297\_28 | 100 | 28 | 0 | 0 | 1 | 28 | 3892 | 3919 |
| hsa\_circ\_0091702 | HHFKP\_155682\_cluster-24110\_16\_150\_41 | 100 | 41 | 0 | 0 | 1 | 41 | 3909 | 3949 |
| hsa\_circ\_0091702 | HHFCT\_169175\_cluster-24110\_14\_740\_130 | 100 | 130 | 0 | 0 | 1 | 130 | 3985 | 4114 |
| hsa\_circ\_0091702 | HPKMA\_15443\_G17846.1\_150577405\_24 | 100 | 24 | 0 | 0 | 1 | 24 | 3995 | 4018 |
| hsa\_circ\_0091702 | HPRT3\_27045\_G36287.1\_150577392\_25 | 100 | 25 | 0 | 0 | 1 | 25 | 3995 | 4019 |
| hsa\_circ\_0091702 | HHFKP\_155683\_cluster-24110\_17\_2249\_111 | 100 | 111 | 0 | 0 | 1 | 111 | 3996 | 4106 |
| hsa\_circ\_0091702 | HPKTA\_64301\_G69591.1\_150577450\_60 | 100 | 60 | 0 | 0 | 1 | 60 | 4032 | 4091 |
| hsa\_circ\_0091702 | HPKMA\_15444\_G17847.1\_150577439\_61 | 100 | 61 | 0 | 0 | 1 | 61 | 4034 | 4094 |
| hsa\_circ\_0091702 | HPRT3\_27046\_G36289.1\_150577480\_31 | 100 | 31 | 0 | 0 | 1 | 31 | 4063 | 4093 |
| hsa\_circ\_0091702 | HHFCT\_169177\_cluster-24110\_17\_187\_143 | 100 | 143 | 0 | 0 | 1 | 143 | 4143 | 4285 |
| hsa\_circ\_0091702 | HHRBL\_15716\_BCBL1-2of3-SCL\_1540\_132 | 100 | 132 | 0 | 0 | 1 | 132 | 4176 | 4307 |
| hsa\_circ\_0091702 | HHFKP\_155684\_cluster-24110\_18\_834\_81 | 100 | 81 | 0 | 0 | 1 | 81 | 4177 | 4257 |
| hsa\_circ\_0091702 | HPKMA\_15445\_G17848.1\_150577642\_31 | 100 | 31 | 0 | 0 | 1 | 31 | 4235 | 4265 |
| hsa\_circ\_0091702 | HPKTA\_64302\_G69592.1\_150577642\_31 | 100 | 31 | 0 | 0 | 1 | 31 | 4240 | 4270 |
| hsa\_circ\_0091702 | HHFCT\_169178\_cluster-24110\_18\_43\_50 | 100 | 50 | 0 | 0 | 1 | 50 | 4307 | 4356 |
| hsa\_circ\_0091702 | HHRBL\_15717\_BCBL1-2of3-SCL\_5004\_84 | 100 | 84 | 0 | 0 | 1 | 84 | 4317 | 4400 |
| hsa\_circ\_0091702 | HHFKP\_155685\_cluster-24110\_19\_113\_28 | 100 | 28 | 0 | 0 | 1 | 28 | 4319 | 4346 |
| hsa\_circ\_0091702 | HPTK1\_31029\_G37248.1\_150577729\_33 | 100 | 33 | 0 | 0 | 1 | 33 | 4323 | 4355 |
| hsa\_circ\_0091702 | HHFCT\_169179\_cluster-24110\_20\_78\_43 | 100 | 43 | 0 | 0 | 1 | 43 | 4389 | 4431 |