**Supplementary Table 1.** Basic information of Rhinolophus feerumequinum assembly

| **Loc** | **Type** | **Name** | **RefSeq** | **INSDC** | **Size (Mb)** | **GC%** | **Protein** | **rRNA** | **tRNA** | **Other RNA** | **Gene** | **Pseudogene** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Chr | 1 | [NC\_046284.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046284.1) | [CM014226.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014226.1) | 124.93 | 39.5 | [1,916](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 1/) | - | 33 | 168 | 1,400 | 352 |
|  | Chr | 2 | [NC\_046285.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046285.1) | [CM014227.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014227.1) | 109.26 | 38.2 | [1,791](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 2/) | - | 14 | 183 | 1,051 | 218 |
|  | Chr | 3 | [NC\_046286.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046286.1) | [CM014228.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014228.1) | 104.3 | 38.5 | [2,050](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 3/) | - | 36 | 209 | 1,203 | 209 |
|  | Chr | 4 | [NC\_046287.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046287.1) | [CM014229.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014229.1) | 106.21 | 37.8 | [1,342](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 4/) | - | 15 | 160 | 803 | 162 |
|  | Chr | 5 | [NC\_046288.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046288.1) | [CM014230.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014230.1) | 88.03 | 38.1 | [1,398](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 5/) | - | 7 | 150 | 781 | 153 |
|  | Chr | 6 | [NC\_046289.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046289.1) | [CM014231.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014231.1) | 101.15 | 40.6 | [2,600](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 6/) | - | 36 | 311 | 1,557 | 211 |
|  | Chr | 7 | [NC\_046290.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046290.1) | [CM014232.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014232.1) | 100.28 | 38.5 | [1,425](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 7/) | - | 9 | 172 | 905 | 168 |
|  | Chr | 8 | [NC\_046291.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046291.1) | [CM014233.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014233.1) | 97.57 | 38.6 | [1,681](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 8/) | - | 18 | 141 | 878 | 167 |
|  | Chr | 9 | [NC\_046292.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046292.1) | [CM014234.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014234.1) | 94.5 | 42.0 | [2,609](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 9/) | - | 20 | 253 | 1,336 | 173 |
|  | Chr | 10 | [NC\_046293.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046293.1) | [CM014235.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014235.1) | 92.46 | 40.3 | [2,514](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 10/) | - | 24 | 237 | 1,458 | 188 |
|  | Chr | 11 | [NC\_046294.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046294.1) | [CM014236.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014236.1) | 89.12 | 41.5 | [2,944](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 11/) | - | 28 | 192 | 1,620 | 206 |
|  | Chr | 12 | [NC\_046295.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046295.1) | [CM014237.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014237.1) | 83.96 | 41.1 | [2,015](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 12/) | 1 | 25 | 188 | 1,048 | 131 |
|  | Chr | 13 | [NC\_046296.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046296.1) | [CM014238.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014238.1) | 71.41 | 40.4 | [1,384](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 13/) | - | 21 | 118 | 784 | 129 |
|  | Chr | 14 | [NC\_046297.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046297.1) | [CM014239.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014239.1) | 73.41 | 39.7 | [1,164](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 14/) | - | 11 | 139 | 658 | 141 |
|  | Chr | 15 | [NC\_046298.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046298.1) | [CM014240.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014240.1) | 51.06 | 45.2 | [2,420](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 15/) | - | 19 | 180 | 1,335 | 137 |
|  | Chr | 16 | [NC\_046299.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046299.1) | [CM014241.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014241.1) | 67.74 | 41.6 | [1,577](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 16/) | - | 15 | 141 | 760 | 97 |
|  | Chr | 17 | [NC\_046300.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046300.1) | [CM014242.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014242.1) | 66.94 | 41.6 | [1,683](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 17/) | - | 11 | 96 | 758 | 97 |
|  | Chr | 18 | [NC\_046301.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046301.1) | [CM014243.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014243.1) | 62.62 | 41.1 | [2,079](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 18/) | - | 17 | 180 | 1,092 | 97 |
|  | Chr | 19 | [NC\_046302.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046302.1) | [CM014244.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014244.1) | 60.48 | 39.6 | [960](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 19/) | - | 7 | 75 | 480 | 104 |
|  | Chr | 20 | [NC\_046303.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046303.1) | [CM014245.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014245.1) | 57.78 | 38.7 | [899](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 20/) | - | 12 | 95 | 532 | 107 |
|  | Chr | 21 | [NC\_046304.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046304.1) | [CM014246.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014246.1) | 55.57 | 45.0 | [2,703](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 21/) | - | 56 | 256 | 1,454 | 121 |
|  | Chr | 22 | [NC\_046305.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046305.1) | [CM014247.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014247.1) | 53.31 | 42.5 | [2,118](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 22/) | - | 84 | 208 | 1,158 | 89 |
|  | Chr | 23 | [NC\_046306.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046306.1) | [CM014248.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014248.1) | 45.54 | 43.5 | [1,256](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 23/) | - | 10 | 136 | 697 | 69 |
|  | Chr | 24 | [NC\_046307.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046307.1) | [CM014249.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014249.1) | 44.82 | 43.6 | [1,373](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 24/) | - | 16 | 120 | 713 | 70 |
|  | Chr | 25 | [NC\_046308.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046308.1) | [CM014250.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014250.1) | 40.34 | 44.7 | [1,315](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 25/) | - | 18 | 115 | 699 | 77 |
|  | Chr | 26 | [NC\_046309.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046309.1) | [CM014251.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014251.1) | 30.14 | 41.2 | [687](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 26/) | - | 23 | 73 | 399 | 33 |
|  | Chr | 27 | [NC\_046310.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046310.1) | [CM014252.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014252.1) | 27.84 | 41.7 | [539](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 27/) | - | 4 | 73 | 297 | 31 |
|  | Chr | 28 | [NC\_046311.1](https://www.ncbi.nlm.nih.gov/nuccore/NC_046311.1) | [CM014253.1](https://www.ncbi.nlm.nih.gov/nuccore/CM014253.1) | 16.66 | 46.3 | [446](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/chromosome 28/) | - | 11 | 111 | 276 | 14 |
|  |  | MT | - | [CM016610.1](https://www.ncbi.nlm.nih.gov/nuccore/CM016610.1) | 0.02 | 42.9 | - | - | - | - | - | - |
|  | Un | - | [.](https://www.ncbi.nlm.nih.gov/nuccore/) | - | 58.34 | 43.9 | [1,784](https://www.ncbi.nlm.nih.gov/genome/browse/#!/proteins/10960/1482965|Rhinolophus ferrumequinum/Un/) | 1 | 20 | 198 | 1,007 | 105 |

**Supplementary Table 2.** Description of the TRA/D genes in the Rhinolophus ferrumequinumchromosome6 genome assembly (NCBI Reference SequenceNC\_046289). The position of all genes and their classification and functionality are reported

|  |  |  |
| --- | --- | --- |
| Gene identification | Functionality | Position (Complement) |
| OG10G2 | ? | 1074…2179 |
| TRAV1 | P | 2456031…2456711 |
| TRAV2-1 | F | 2509279…2509818 |
| TRAV3-1 | F | 2514156…2514626 |
| TRAV2-2 | F | 2520742…2521281 |
| TRAV2-3 | F | 2533230…2533764 |
| TRAV3-2 | F | 2538475…2538942 |
| TRAV4 | F | 2549165…2549970 |
| TRAV6 | F | 2555766…2556329 |
| TRAV13-1 | F | 2565534…2566085 |
| TRAV13-2 | P | 2567730…2568033 |
| TRAV14-1/TRDV1-1 | F | 2571156…2571714 |
| TRAV13-3 | F | 2586064…2586608 |
| TRAV13-4 | F | 2601171…2601712 |
| TRAV14-2/TRDV1-2 | F | 2607284…2607841 |
| TRAV9-1 | F | 2613791…2614288 |
| TRAV13-5 | F | 2623214…2623760 |
| TRAV14-3/TRDV1-3 | F | 2628215…2628773 |
| TRAV9-2 | F | 2634507…2635005 |
| TRAV43 | P | 2640529…2641056 |
| TRAV13-6 | F | 2645433…2645981 |
| TRAV14-4/TRDV1-4 | P | 2652034…2652565 |
| TRAV9-3 | F | 2660373…2660871 |
| TRAV13-7 | F | 2667736…2668277 |
| TRAV14-5/TRDV1-5 | P | 2673428…2673976 |
| TRAV9-4 | F | 2681102…2681598 |
| TRAV13-8 | F | 2689804…2690347 |
| TRAV14-6/TRDV1-6 | F | 2695692…2696250 |
| TRAV11 | ORF | 2701831…2702414 |
| TRAV8-1 | F | 2712087…2712608 |
| TRAV16 | F | 2717620…2718099 |
| TRAV18-1 | F | 2728447…2728911 |
| TRAV19-1/TRDV2 | F | 2730450…2731041 |
| TRAV18-2 | F | 2739487…2739994 |
| TRAV19-2 |  | 2746348…2746606 |
| TRAV20 | P | 2748349…2748677 |
| TRAV21 | F | 2750199…2750776 |
| TRAV8-2 | P | 2753819…2754249 |
| TRAV22-1 | F | 2758182…2758741 |
| TRAV23-1/TRDV3-1 | F | 2767636…2768234 |
| TRAV24-1 | F | 2773550…2774098 |
| TRAV25-1 | F | 2779190…2779820 |
| TRAV8-3 | F | 2786863…2787374 |
| TRAV27-1 | F | 2792990…2793582 |
| TRAV24-2 | F | 2795587…2796135 |
| TRAV25-2 | F | 2802700…2803329 |
| TRAV8-4 | F | 2809777…2810288 |
| TRAV24-3 | F | 2817564…2818106 |
| TRAV25-3 | F | 2824647…2825262 |
| TRAV8-5 | F | 2834937…2835454 |
| TRAV22-2 | P | 2839685…2840243 |
| TRAV23-2/TRDV3-2 | F | 2849279…2849879 |
| TRAV24-4 | F | 2854237…2854785 |
| TRAV25-4 | F | 2859889…2860520 |
| TRAV8-6 | F | 2868335…2868852 |
| TRAV27-2 | F | 2874196…2874789 |
| TRAV24-5 | ORF | 2876405…2876953 |
| TRAV8-7 | P | 2881629…2882094 |
| TRAV22-3 | P | 2884695…2885253 |
| TRAV8-8 | F | 2891305…2891816 |
| TRAV27-3 | F | 2897800…2898392 |
| TRAV24-6 | F | 2900254…2900802 |
| TRAV8-9 | F | 2916784…2917295 |
| TRAV24-7 | P | 2924468…2924992 |
| TRAV25-5 | F | 2931905…2932532 |
| TRAV8-10 | F | 2938623…2939134 |
| TRAV27-4 | F | 2944666…2945259 |
| TRAV29-1/TRDV4-1 | F | 2948007…2948583 |
| TRDV5 | F | 2954415…2955017 |
| TRAV33-1 | F | 2961571…2962173 |
| TRAV8-11 | F | 2971317…2971834 |
| TRAV27-5 | F | 2977378…2977959 |
| TRAV29-2/TRDV4-2 | F | 2980732…2981308 |
| TRAV31 | P | 2984748…2985348 |
| TRAV33-2 | F | 2987593…2988195 |
| TRAV32-1 | F | 2997684…2998499 |
| TRAV34 | P | 3007746…3008383 |
| TRDV6 | F | 3019721…3020314 |
| TRAV32-2 | ORF | 3027843…3028653 |
| TRAV37/TRDV7 | F | 3052797…3053370 |
| TRDV8 | F | 3058179…3058793 |
| TRAV39 | P | 3074862…3075396 |
| TRAV40 | F | 3087363…3087829 |
| TRAV41 | F | 3091326…3091892 |
| TRAV46 | P | 3151979…3152421 |
| TRDV9 | F | 3158158…3158599 |
| TRDV10 | F | 3177016…3177361 |
| TRDD1 | F | 3208329…3208410 |
| TRDJ1 | F | 3209898…3209973 |
| TRDJ2 | F | 3215019…3215093 |
| TRDJ3 | ORF | 3216444…3216526 |
| TRDJ4 | F | 3218774…3218861 |
| TRDC | F | 3222377…3223873 |
| TRDV11 | F | 3228255…3228878 |
| TRAJ1 | ORF | 3234704…3234791 |
| TRAJ2 | F | 3235715…3235799 |
| TRAJ3 | F | 3235963…3236050 |
| TRAJ4 | F | 3237096…3237183 |
| TRAJ5 | F | 3238283…3238373 |
| TRAJ6 | F | 3238929…3239018 |
| TRAJ7 | P | 3241187…3241241 |
| TRAJ8 | F | 3241732…3241827 |
| TRAJ9 | F | 3242377…3242470 |
| TRAJ10 | F | 3245538…3245636 |
| TRAJ11 | F | 3247821…3247896 |
| TRAJ12 | F | 3248687…3248773 |
| TRAJ13 | F | 3249503…3249595 |
| TRAJ14 | F | 3251490…3251577 |
| TRAJ15 | F | 3252059…3252149 |
| TRAJ16 | F | 3252565…3252662 |
| TRAJ17 | F | 3253408…3253498 |
| TRAJ18 | F | 3254474…3254558 |
| TRAJ19 | F | 3255304…3255397 |
| TRAJ20 | F | 3255800…3255889 |
| TRAJ21 | F | 3257506…3257590 |
| TRAJ22 | F | 3259384…3259474 |
| TRAJ23 | F | 3260020…3260109 |
| TRAJ24 | F | 3261551…3261640 |
| TRAJ25 | F | 3262268…3262356 |
| TRAJ26 | F | 3263791…3263879 |
| TRAJ27 | F | 3264856…3264941 |
| TRAJ28 | F | 3265538…3265622 |
| TRAJ29 | F | 3266279…3266372 |
| TRAJ30 | ORF | 3267970…3268027 |
| TRAJ31 | F | 3269807…3269890 |
| TRAJ32 | F | 3270904…3270991 |
| TRAJ33 | F | 3272001…3272094 |
| TRAJ34 | F | 3272651…3272737 |
| TRAJ35 | F | 3274878…3274965 |
| TRAJ36 | F | 3275238…3275324 |
| TRAJ37 | F | 3276091…3276181 |
| TRAJ38 | F | 3276518…3276608 |
| TRAJ39 | ORF | 3278121…3278181 |
| TRAJ40 | F | 3279632…3279714 |
| TRAJ41 | F | 3280368…3280455 |
| TRAJ42 | ORF | 3281360…3281417 |
| TRAJ43 | F | 3281716…3281809 |
| TRAJ44 | F | 3282920…3283010 |
| TRAJ45 | F | 3284305…3284393 |
| TRAJ46 | F | 3285403…3285490 |
| TRAJ47 | ORF | 3286029…3286083 |
| TRAJ48 | F | 3286776…3286866 |
| TRAJ49 | F | 3287660…3287747 |
| TRAJ50 | F | 3288226…3288313 |
| TRAJ51 | F | 3288969…3289061 |
| TRAJ52 | F | 3290824…3290909 |
| TRAJ53 | F | 3291375…3291462 |
| TRAJ54 | F | 3292839…3292294 |
| TRAJ55 | F | 3294244…3294333 |
| TRAJ56 | F | 3295417…3295501 |
| TRAJ57 | F | 3298063…3298153 |
| TRAJ58 | F | 3299045…3299136 |
| TRAJ59 | F | 3299605…3299698 |
| TRAJ60 | F | 3300573…3300662 |
| TRAC1 | F | 3303741…3306544 |
| DAD1 | ? | 3318653…3336546 |

**Supplementary Table 3.** Description of the TRG genes in the Rhinolophus ferrumequinumchromosome20 genome assembly (NCBI Reference SequenceNC\_046303). The position of all genes and their classification and functionality are reported

|  |  |  |
| --- | --- | --- |
| Gene identification | Functionality | Position (Complement) |
| AMPH | ? | 52424198…52205147 |
| TRGV1-1 | F | 52186520…52186015 |
| TRGV2-1 | P | 52176399…52175881 |
| TRGV3-1 | F | 52162344…52161835 |
| TRGV4-1 | P | 52159300…52158845 |
| TRGV5-1 | ORF | 52155063…52154527 |
| TRGV6-1 | ORF | 52149224…52148706 |
| TRGV7-1 | F | 52147412…52146932 |
| TRGJ1-1 | F | 52140486…52140398 |
| TRGJ2-1 | F | 52138177…52138089 |
| TRGJ3-1 | F | 52134698…52134620 |
| TRGC1 | F | 52131383…52124942 |
| TRGV1-2 | F | 52092696…52092191 |
| TRGV2-2 | P | 52085354…52084836 |
| TRGV3-2 | F | 52074506…52073997 |
| TRGV4-2 | P | 52071457…52071002 |
| TRGV5-2 | ORF | 52067234…52066698 |
| TRGV6-2 | P | 52059010…52058492 |
| TRGV7-2 | F | 52057190…52056702 |
| TRGJ1-2 | F | 52050249…52050161 |
| TRGJ2-2 | F | 52047899…52047811 |
| TRGJ3-2 | F | 52044405…52044328 |
| TRGC2 | F | 52041089…52035058 |
| STARD3NL | ? | 52030211…51976009 |

**Supplementary Table 4.** Description of the TRB genes in the Rhinolophus ferrumequinum chromosome26 genome assembly (NCBI Reference SequenceNC.046303). The position of all genes and their classification and functionality are reported.

|  |  |  |
| --- | --- | --- |
| Gene identification | Functionality | Position (Complement) |
| MOXD2 | ? | 8164121…8171343 |
| TRBV1 | F | 8159483…8158814 |
| TRBV3 | F | 8122215…8121717 |
| TRBV4 | F | 8118047…8117546 |
| TRBV5 | F | 8116020…8115522 |
| TRBV6-1 | F | 8088471…8087985 |
| TRBV7-1 | F | 8085469…8084908 |
| TRBV8 | F | 8082269…8081758 |
| TRBV7-2 | F | 8075936…8075431 |
| TRBV13 | F | 8070856…8070332 |
| TRBV6-2 | F | 8066387…8065883 |
| TRBV11 | F | 8062266…8061667 |
| TRBV12-1 | F | 8056213…8055727 |
| TRBV12-2 | F | 8056265…8053779 |
| TRBV12-3 | F | 8052346…8051860 |
| TRBV14 | F | 8048793…8048321 |
| TRBV15 | ORF | 8046948…8046438 |
| TRBV16 | F | 8042654…8042170 |
| TRBV17 | F | 8039889…8039413 |
| TRBV20 | ORF | 8032880…8032160 |
| TRBV21 | F | 8026415…8025921 |
| TRBV22 | F | 8023564…8023053 |
| TRBV23 | F | 8018971…8018477 |
| TRBV24 | F | 8013869…8013368 |
| TRBV25 | F | 8010463…8009929 |
| TRBV26 | F | 8006723…8006205 |
| TRBV27 | F | 8002680…8002167 |
| TRBV28 | F | 7998256…7997750 |
| TRBV29 | F | 7994906…7994271 |
| TRBD1 | F | 7980902…7980824 |
| TRBJ1-1 | F | 7980290…7980216 |
| TRBJ1-2 | F | 7980155…7980081 |
| TRBJ1-3 | F | 7979571…7979495 |
| TRBJ1-4 | F | 7978972…7978895 |
| TRBJ1-5 | F | 7978716…7978640 |
| TRBJ1-6 | F | 7978243…7978164 |
| TRBC1 | F | 7975603…7974159 |
| TRBD2 | F | 7971724…7971643 |
| TRBJ2-1 | F | 7970816…7970740 |
| TRBJ2-2 | F | 7970620…7970543 |
| TRBJ2-3 | P | 7970450…7970403 |
| TRBJ2-4 | F | 7970330…7970255 |
| TRBJ2-5 | F | 7970183…7970109 |
| TRBJ2-6 | F | 7970037…7969960 |
| TRBJ2-7 | F | 7969916…7969842 |
| TRBJ2-8 | F | 7969814…7969735 |
| TRBC2 | F | 7965510…7965176 |
| TRBV30 | F | 7956006…7955267 |
| EPHB6 | ? | 7929436…7911840 |

**Supplementary Table 5**. Description of the TRAV、TRDV、TRGV、TRBV、TRAJ、TRDJ and TRBJ ORF and pseudogenes.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TRAV | Functionality | Defective Leader | Frameshift | Stop Codon | Defective Splice sites | Defective RSS |
| TRAV1 | P |  |  | ● |  |  |
| TRAV8-2 | P |  |  | ● |  | ● |
| TRAV8-7 | ORF |  |  |  |  | ● |
| TRAV11 | ORF | ● |  |  |  |  |
| TRAV13-2 | P | ● | ● | ● | ● | ● |
| TRAV14-4/DV1-4 | P | ● |  | ● |  |  |
| TRAV14-5/DV1-5 | P |  |  | ● |  |  |
| TRAV19-2 | P | ● | ● | ● | ● | ● |
| TRAV20 | P | ● |  | ● |  |  |
| TRAV24-5 | ORF | ● |  |  |  |  |
| TRAV24-7 | P | ● | ● |  |  |  |
| TRAV31 | P | ● |  |  |  | ● |
| TRAV32-2 | ORF | ● |  |  |  |  |
| TRAV34 | P | ● |  | ● |  |  |
| TRAV39 | P |  |  | ● |  |  |
| TRAV43 | P |  |  | ● |  | ● |
| TRAV46 | P |  |  | ● |  | ● |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| TRGV | Functionality | Defective Leader | Frameshift | Stop Codon | Defective Splice sites | Defective RSS |
| TRGV2-1 | P | ● |  | ● |  |  |
| TRGV2-2 | P | ● |  | ● |  |  |
| TRGV4-1 | P |  |  | ● |  | ● |
| TRGV4-2 | P |  |  | ● |  | ● |
| TRGV5-1 | ORF | ● |  |  |  |  |
| TRGV5-2 | ORF | ● |  |  |  |  |
| TRGV6-1 | ORF | ● |  |  |  |  |
| TRGV6-2 | P |  |  | ● |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| J gene | Functionality | Defective motif | Frameshift | Stop Codon | Defective Splice sites | Defective RSS |
| TRAJ1 | ORF | ● |  |  |  |  |
| TRAJ7 | P | ● |  |  |  | ● |
| TRAJ30 | ORF |  |  |  |  | ● |
| TRAJ39 | ORF |  |  |  |  | ● |
| TRAJ42 | ORF |  |  |  |  | ● |
| TRAJ47 | ORF |  |  |  |  | ● |
| TRDJ3 | ORF | ● |  |  |  |  |
| TRBJ2-3 | P | ● |  |  |  | ● |

**Supplementary Table 6**. IMGT Potential germline repertoires of the homologous TRAV subgroups in human (Homo sapiens), dog (Canis lupus familiaris), cow (Bos taurus) and bat (Rhinolophus ferrumequinum). IMGT Potential germline repertoires of the homologous TRBV subgroups in human (Homo sapiens), dog (Canis lupus familiaris), pig (Sus scrofa) and bat (Rhinolophus ferrumequinum)



**Supplementary Table 7**. CDR lengths by homologous TRAV subgroups and species in human (Homo sapiens), dog (Canis lupus familiaris), cow (Bos taurus) and bat (Rhinolophus ferrumequinum). CDR lengths by homologous TRBV subgroups and species in human (Homo sapiens), dog (Canis lupus familiaris), pig (Sus scrofa) and bat (Rhinolophus ferrumequinum).

