

**Additional file 4: The mouse *V1R* sampling used for phylogeny**

Gene Symbol	Protein symbol	Genomic Location	Protein Accession Number
<i>V1rj2</i>	V1RJ2	7A1 (region I)	NP_598987
<i>V1rj3</i>	V1RJ3	7A1 (region I)	NP_665846
<i>V1rk1</i>	V1RK1	7A1 (region I)	NP_598988
<i>V1rg1</i>	V1RG1	7A1 (region I)	NP_665842
<i>V1rg2</i>	V1RG2	7A1 (region I)	NP_598964
<i>V1rg5</i>	V1RG5	7A1 (region I)	NP_598967
<i>V1re9</i>	V1RE9	7A1 (region II)	NP_665841
<i>V1re10</i>	V1RE10	7A1 (region II)	NP_598990
<i>V1re11</i>	V1RE11	7A1 (region IV)	NP_598991
<i>V1re12</i>	V1RE12	7A3 (region III)	NP_598992
<i>V1re13</i>	V1RE13	7A1 (region I)	NP_665847
<i>V1rd1</i>	V1RD1	7A1 (region IV)	NP_109667
<i>V1rd2</i>	V1RD2	7A1 (region IV)	NP_109666
<i>V1rd4</i>	V1RD4	7A1 (region IV)	NP_109664
<i>V1rd6</i>	V1RD6	7A1 (region IV)	NP_109663
<i>V1rd9</i>	V1RD9	7A3 (region III)	NP_109660
<i>V1rd10</i>	V1RD10	7A1 (region IV)	NP_997426
<i>V1rd13</i>	V1RD13	7A3 (region III and V)	NP_996751
<i>V1rd14</i>	V1RD14	7A3 (region III and V)	NP_109661
<i>V1rd15</i>	V1RD15	7A3 (region III and V)	NP_987074
<i>V1rd16</i>	V1RD16	7A3 (region III and V)	NP_996752
<i>V1rd18</i>	V1RD18	7A3 (region III and V)	NP_997501
<i>V1rd20</i>	V1RD20	7A3 (region III and V)	NP_997429
<i>V1rd21</i>	V1RD21	7A3 (region III and V)	NP_997430
<i>V1rd22</i>	V1RD22	7A3 (region III)	NP_997431

The division of region I-V is described as in Figure 3.