

# Supplementary Materials: Structural Characterization and Evolutionary Relationship of High-Molecular-Weight Glutenin Subunit Genes in *Roegneria nakaii* and *Roegneria alashanica*

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(a)

1Ray1	A TGGCTAAAGCGGCTGGTCCCTTTGCAGCGGTAGTCGTGCGCCCTGCGCTTCGCGCTTGGGCAACTACAGTGTGAGCG	80
1Rny1	A TGGCTAAAGCGGCTGGTCCCTTTGCAGCGGTAGTCGTGCGCCCTGCGCTTCGCGCTTGGGCAACTACAGTGTGAGCG	80
1Rny3	A TGGCTAAAGCGGCTGGTCCCTTTGCAGCGGTAGTCGTGCGCCCTGCGCTTCGCGCTTGGGCAACTACAGTGTGAGCG	80
1Ray1	C GAGCTCCGGAGAGCTCGCTTAAGCGTGTGGCGCGGTGCGACAGCAGTCGCGCCCATGTCATGGAGCAACGG	160
1Rny1	C GAGCTCCGGAGAGCTCGCTTAAGCGTGTGGCGCGGTGCGACAGCAGTCGCGCCCATGTCATGGAGCAACGG	160
1Rny3	C GAGCTCCGGAGAGCTCGCTTAAGCGTGTGGCGCGGTGCGACAGCAGTCGCGCCCATGTCATGGAGCAACGG	160
1Ray1	G GCTCCAGATGCGGTCTGCCAGCAGTCCGAGACGTTAGCCCGAGTCGCGCCCGTCAGCCAGGGTCGAGA	240
1Rny1	G GCTCCAGATGCGGTCTGCCAGCAGTCCGAGACGTTAGCCCGAGTCGCGCCCGTCAGCCAGGGTCGAGA	240
1Rny3	G GCTCCAGATGCGGTCTGCCAGCAGTCCGAGACGTTAGCCCGAGTCGCGCCCGTCAGCCAGGGTCGAGA	240
1Ray1	C AATCAGAGCAGCAAACCGCGGTGCGGCCAAGGGCGGATCTCTTACCCCAGCAGACAGCAGCACCCGCAGCAACTCCA	320
1Rny1	C AATCAGAGCAGCAAACCGCGGTGCGGCCAAGGGCGGATCTCTTACCCCAGCAGACAGCAGCACCCGCAGCAACTCCA	320
1Rny3	C AATCAGAGCAGCAAACCGCGGTGCGGCCAAGGGCGGATCTCTTACCCCAGCAGACAGCAGCACCCGCAGCAACTCCA	320
1Ray1	A CAAAAGATAATTCTGGGGAAGATCTTCACAACCAAGTACAGAACGGTCTTACCCAAAGCTGTAACCTCTCCAGAGGTTGCT	400
1Rny1	A CAAAAGATAATTCTGGGGAAGATCTTCACAACCAAGTACAGAACGGTCTTACCCAAAGCTGTAACCTCTCCAGAGGTTGCT	400
1Rny3	A CAAAAGATAATTCTGGGGAAGATCTTCACAACCAAGTACAGAACGGTCTTACCCAAAGCTGTAACCTCTCCAGAGGTTGCT	400
1Ray1	A CTATCCAGGCCAAAGGCTCTCCGCAACAGACAGGACAGGGCAACAGCCAGGACAAGGGCAAGAACCAAGGGCAAA	480
1Rny1	A CTATCCAGGCCAAAGGCTCTCCGCAACAGACAGGACAGGGCAACAGCCAGGACAAGGGCAAGAACCAAGGGCAAA	480
1Rny3	A CTATCCAGGCCAAAGGCTCTCCGCAACAGACAGGACAGGGCAACAGCCAGGACAAGGGCAAGAACCAAGGGCAAA	480
1Ray1	C AAAGGGTACTACCCAAACTTCTCGCAGCAGGAGCAGAACAGGGTACTACCCAACTTCTCGCAGCAGGAGCAGGCCAGG	560
1Rny1	C AAAGGGTACTACCCAAACTTCTCGCAGCAGGAGCAGAACAGGGTACTACCCAACTTCTCGCAGCAGGAGCAGGCCAGG	560
1Rny3	C AAAGGGTACTACCCAAACTTCTCGCAGCAGGAGCAGAACAGGGTACTACCCAACTTCTCGCAGCAGGAGCAGGCCAGG	560
1Ray1	A CAAGGGCAACAGCCAGGGGCAAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGAAC	640
1Rny1	A CAAGGGCAACAGCCAGGGGCAAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGAAC	640
1Rny3	A CAAGGGCAACAGCCAGGGGCAAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGAAC	640
1Ray1	A AGGGCAACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	720
1Rny1	A AGGGCAACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	720
1Rny3	A AGGGCAACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	720
1Ray1	C AAAGGCACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	800
1Rny1	C AAAGGCACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	800
1Rny3	C AAAGGCACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	800
1Ray1	A CAAGTGCACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	880
1Rny1	A CAAGTGCACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	880
1Rny3	A CAAGTGCACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	880
1Ray1	G AACAGGGCAACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGTACTATCCAACTCTCCG	960
1Rny1	G AACAGGGCAACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGTACTATCCAACTCTCCG	960
1Rny3	G AACAGGGCAACAAAGGGTACTACCCAACTTCTCCGAGCAGGAGCAGGCCAGGACAAGGGTACTATCCAACTCTCCG	960
1Ray1	C AACAGCCAGGACAAGGGCAAAACCAAGGAAAGGCCAAAGGGTACTACCCAACTTCTCCGAGCAGGCCAGGACAAGGGCAACAAAGGGCA	1040
1Rny1	C AACAGCCAGGACAAGGGCAAAACCAAGGAAAGGCCAAAGGGTACTACCCAACTTCTCCGAGCAGGCCAGGACAAGGGCAACAAAGGGCA	1040
1Rny3	C AACAGCCAGGACAAGGGCAAAACCAAGGAAAGGCCAAAGGGTACTACCCAACTTCTCCGAGCAGGCCAGGACAAGGGCAACAAAGGGCA	1040
Indel1	.....	GGGTACTACCC
1Ray1	GCAACAA.....	GGGTACTACCC
1Rny1	GCAACAA.....	GGGTACTACCC
1Rny3	GCAACAA.....	GGGTACTACCC
Indel2	.....	GGGTACTACCC
1Ray1	C AACTCTCCACAGCA.....	GGGTACTACCC
1Rny1	C AACTCTCCACAGCA.....	GGGTACTACCC
1Rny3	C AACTCTCCACAGCA.....	GGGTACTACCC
1Ray1	T GGCACACCAAGGGACAAGGGCAACAAAGGGTACTACCCAACTTCTCCGAGCAGGCCAGGACAAGGGCAACAAAGGGCA	1117
1Rny1	T GGCACACCAAGGGACAACAGGGTACTACCCAACTTCTCCGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	1119
1Rny3	T GGCACACCAAGGGACAACAGGGTACTACCCAACTTCTCCGAGCAGGCCAGGACAAGGGCAACAAAGGGCAACAAAGGGCA	1280
1Ray1	A CAAGGGCAGCAATCGGAGACAGACAAAGG.....	1297
1Rny1	A CAAGGGCAGCAATCGGAGACAGACAAAGG.....	1297
1Rny3	A CAAGGGCAGCAATCGGAGACAGACAAAGG.....	1360
1Ray1	T AAAAGGTGGCAA.....	1277
1Rny1	T AAAAGGTGGCAA.....	1259
1Rny3	T AAAAGGTGGCAA.....	1440
1Ray1	A GCCAGTGATAG	1289
1Rny1	A GCCAGTGATAG	1371
1Rny3	A GCCAGTGATAG	1452

Figure S1. Cont.

(b)

**Figure S1.** Comparison of the coding region sequences of *Roegneria* high-molecular-weight glutenin subunit (HMW-GS) genes *Rny1*, *Rny3* and *Ray1* (a), and *Rny2*, *Rny4* and *Ray2* (b). Indels are boxed.