

Supplementary File 2: Amino acid sequence alignments of human and canine CNPase isoforms 2 showing the locations of the disease-related variants in the canine (green T42M) and blue (S82L)

CLUSTAL O(1.2.4) multiple sequence alignment

|                                |                                                               |     |
|--------------------------------|---------------------------------------------------------------|-----|
| sp P09543 CN37_HUMAN           | MNRGFSRKSHFLPKIFFRKMSSSGAKDKPELQFPFLQDEDTVATLLECKTLFILRGLPG   | 60  |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | MNRSFSRKSHAFPLPKIFFRKMSSSGAKDKPELQFPFLQDEETVATLQECKTLFILRGLPG | 60  |
|                                |                                                               | M   |
| sp P09543 CN37_HUMAN           | SGKSTLARVIVDKYRDGTMVLSADAYKITPGARGAFSEEEKRLDEDLAAYCRRRDIRILV  | 120 |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | SGKSTLARVIVDRYRDGTMVLSADAYKITPGARGDFSEEEKRLDEDLAAYCR-RDVRVLV  | 119 |
|                                |                                                               | L   |
| sp P09543 CN37_HUMAN           | LDDTNHERERLEQLFEMADQYQYQVVLVEPKTAWRLDCAQLKEKNQWQLSADDLKKLKPG  | 180 |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | LDDTNHERERLEQLFELADQYQYQVVLVEPKTAWRLDCAQLKEKNQWQLSADELKKLKPG  | 179 |
| sp P09543 CN37_HUMAN           | LEKDFLPLYFGWFLTKKSSETLRKAGQVFLEELGNHKAFKKELRQFVPGDEPREKMDLVT  | 240 |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | LEKDFLPLYFGWFLTKKSSESLRKAGQAFLEELGNHKAFKKELRHFVSGDEPREKIELVT  | 239 |
| sp P09543 CN37_HUMAN           | YFGKRPPGVLHCTTKFCDYGKAPGAEEYAQQDVLKKSYSKAFTLTISALFVTPKTTGARV  | 300 |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | YFGKRPPGVLHCTTKFCDYGAAGADEYAQQDVVKKSYSCKAFTLTITALFVTPKTAGARV  | 299 |
| sp P09543 CN37_HUMAN           | ELSEQQLQLWPSDVKLSPTDNLPRGSRAHITLGCADVEAVQTGLDLLEILRQEKGGSR    | 360 |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | ELSEQELPLWPNDVDKLSPSDSLPRGSRAHITLGCAGDVEPVQTGIDLLEIVRQEKGGSR  | 359 |
| sp P09543 CN37_HUMAN           | GEEVGELSRGKLYSLGNRWMLTLAKNMEVRAIFTGYYGKGKPVPTQGSRKGGALQSCTI   | 420 |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | GEEVGELNRGKLYSLGNRWLLSLAKKLEVRAIFTGYYGKGKPVPTHGSRKGGALQSCTI   | 419 |
| sp P09543 CN37_HUMAN           | I 421                                                         |     |
| tr A0A8I3NGU6 A0A8I3NGU6_CANLF | I 420                                                         |     |