



**Online Resource 5** Protofilament interface in PHFs. Packing between residues <sup>331</sup>KPGGGQV<sup>337</sup> of the two protofilaments. Inter-protofilament hydrogen bonds are present between G333 and G334, and between Q336 and the backbone carbonyl of K331. Additional densities between the side chains of K331 and the backbone atoms of V337 are highlighted with dashed orange outlines.