

Table S1. Table with computational data for all calculated helices.

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| Protein class | Superhelix ¹ | Number of helices | Chains | Amino acid sequence ² | Helix lengths ³ | Effective angle | Twist direction |
|----------------|-------------------------|-------------------|------------------|----------------------------------|----------------------------|-----------------|-----------------|
| Oxidoreductase | 1AFR | 2 | A | A/189-200; A/240-229 | 12 | 39,380 | L |
| | 1EZV | 2 | C | C/130-116; C/183-197 | 15 | 32,399 | L |
| | 1FYZ | 2 | A | A/107-121; A/155-141 | 15 | 34,182 | L |
| | 1GU2 | 2 | A | A/16-5; A/106-117 | 12 | 42,518 | L |
| | 1H0O | 2 | A | A/132-146; A/181-167 | 15 | 37,735 | L |
| | 1IS2 | 2 | A | A/557-568; A/599-588 | 12 | 47,849 | L |
| | 1JKU | 2 | A | A/141-159; A/189-171 | 19 | 52,370 | L |
| | 1MHY | 2 | D | D/111-125; D/151-137 | 15 | 33,629 | L |
| | 1NG3 | 2 | A,C | A/272-283; C/283-272 | 12 | 57,604 | L |
| | 1OTK | 2 | A | A/95-109; A/142-128 | 15 | 67,439 | L |
| | 1PHZ | 2 | A | A/298-309; A/392-403 | 12 | 19,277 | L |
| | 1R2F | 2 | A | A/60-71; A/109-98 | 12 | 33,718 | L |
| | 1U6I | 2 | A,B | A/138-149; B/149-138 | 12 | 28,084 | L |
| | 1YQ9 | 2 | H | H/239-250; H/433-422 | 12 | 15,324 | L |
| | 1YUX | 2 | A | A/54-30; A/63-87 | 25 | 75,284 | L |
| | 1ZA0 | 2 | A | A/152-170; A/200-182 | 19 | 71,192 | L |
| | 1ZOY | 2 | D | D/60-49; D/68-79 | 12 | 44,528 | L |
| | 2B0T | 2 | A | A/657-668; A/691-680 | 12 | 50,383 | L |
| | 2C2X | 2 | A | A/12-26; A/265-279 | 15 | 35,185 | L |
| | 2CWL | 2 | A | A/36-47; A/74-63 | 12 | 46,983 | L |
| Hydrolase | 2F1K | 2 | A,B | A/252-238; B/241-255 | 15 | 25,153 | L |
| | 2FYN | 2 | M | M/145-131; M/198-212 | 15 | 35,179 | L |
| | 2HKO | 2 | A | A/434-462; A/511-483 | 29 | 83,371 | L |
| | 1AQT | 2 | A | A/105-91; A/117-131 | 15 | 48,522 | L |
| | 1AYX | 2 | A | A/220-234; A/257-243 | 15 | 43,265 | L |
| | 1FS0 | 2 | G | G/56-32; G/216-240 | 25 | 81,113 | L |
| | 1H12 | 2 | A | A/157-146; A/168-179 | 12 | 38,669 | L |
| | 1HUF | 2 | A | A/16-5; A/110-121 | 12 | 49,361 | L |
| | 1K46 | 2 | A,B ⁴ | A/16-5; B/110-121 | 12 | 49,931 | L |
| | 1KS8 | 2 | A | A/5-16; A/429-418 | 12 | 37,169 | L |
| | 1L1Y | 2 | C | C/444-455; C/526-537 | 12 | 31,134 | L |
| | 1LF9 | 2 | A | A/448-462; A/485-471 | 15 | 38,455 | L |
| | 1S4B | 2 | P | P/164-181; P/269-252 | 18 | 57,208 | L |
| | 1WCH | 2 | A | A/2208-2197; A/2461-2472 | 12 | 36,639 | L |
| | 1WP9 | 2 | A | A/219-233; A/289-275 | 15 | 50,106 | L |
| | 1XZQ_0 | 2 | A | A/171-153; A/412-430 | 19 | 62,797 | L |
| | 1XZQ_1 | 2 | A | A/185-199; A/406-392 | 15 | 41,192 | L |
| | 1YVW | 2 | A | A/50-33; A/59-76 | 18 | 42,006 | L |
| | 1YXB | 2 | A | A/52-38; A/61-75 | 15 | 41,404 | L |
| | 2A8Z | 2 | A | A/157-146; A/168-179 | 12 | 39,682 | L |
| | 2A9U | 2 | A | A/56-67; A/109-98 | 12 | 56,564 | L |
| | 2C6F | 2 | A | A/107-121; A/185-171 | 15 | 62,702 | L |
| | 2CBJ | 2 | B | B/522-540; B/573-555 | 19 | 49,696 | L |
| | 2CFU | 2 | A | A/476-465; A/485-496 | 12 | 45,010 | L |
| | 2CLY | 2 | A,B | A/127-138; B/30-41 | 12 | 45,329 | L |
| | 2EWF | 2 | A | A/304-325; A/352-373 | 22 | 58,903 | L |
| | 2GTQ | 2 | A | A/651-662; A/686-675 | 12 | 39,691 | L |

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|--------------------|--------|---|------------------|------------------------------------|----|---------|---|
| | 2HLD | 2 | P | P/3-24; P/258-237 | 22 | 68,929 | L |
| Isomerase | 1A36 | 2 | A | A/644-661; A/708-691 | 18 | 41,697 | L |
| | 1FP3 | 2 | A | A/5-22; A/401-384 | 18 | 61,905 | L |
| | 1IHG | 2 | A | A/334-323; A/343-354 | 12 | 33,955 | L |
| | 1IIP | 2 | A,D ⁴ | A/239-286; D/286-239 | 48 | 129,500 | L |
| | 1N1B | 2 | B | B/93-82; B/274-285 | 12 | 47,219 | L |
| | 1P5Q_0 | 2 | A,E | A/422-404; E/404-422 | 19 | 60,940 | L |
| | 1P5Q_1 | 2 | A | A/369-380; A/400-389 | 12 | 43,470 | L |
| | 1QZ2_0 | 2 | A,B | A/404-422; B/422-404 | 19 | 64,245 | L |
| | 1QZ2_1 | 2 | B | B/297-286; B/321-332 | 12 | 38,037 | L |
| | 1X94 | 2 | A,B | A/21-10; B/10-21 | 12 | 22,724 | L |
| | 1XRS | 2 | A | A/11-22; A/458-469 | 12 | 38,772 | L |
| | 1YBZ | 2 | A,B ⁴ | A/35-4; B/4-35 | 32 | 76,697 | L |
| | 1ZVU | 2 | A | A/369-383; A/444-430 | 15 | 56,839 | L |
| | 2D8E | 2 | A,B | A/36-5; B/5-36 | 32 | 80,750 | L |
| | 2FEL | 2 | K | K/124-138; K/186-172 | 15 | 39,342 | L |
| | 2NOV | 2 | A | A/361-379; A/453-435 | 19 | 76,391 | L |
| Structural | 1DEB | 2 | A,B | A/6-41; B/6-41 | 36 | 123,278 | L |
| | 1IO1 | 2 | A | A/95-64; A/408-439 | 32 | 76,870 | L |
| | 1LUJ | 2 | A | A/547-533; A/566-580 | 15 | 57,524 | L |
| | 1R0D | 2 | G | G/808-794; G/821-835 | 15 | 23,104 | L |
| | 1U89_0 | 2 | A | A/767-784; A/873-856 | 18 | 49,947 | L |
| | 1U89_1 | 2 | A | A/812-801; A/825-836 | 12 | 37,426 | L |
| | 1WU9 | 2 | A,B | A/193-224; B/193-224 | 32 | 120,801 | L |
| | 1X8Y | 2 | A,B | A/316-380; B/316-380 | 65 | 190,837 | L |
| | 2D4Y_0 | 2 | A | A/95-74; A/484-505 | 22 | 88,777 | L |
| | 2D4Y_1 | 2 | A | A/182-168; A/197-211 | 15 | 41,934 | L |
| | 2F6H | 2 | X | X/139-122; X/158-175 | 18 | 45,018 | L |
| Chaperone | 1ELR | 2 | A | A/327-316; A/335-346 | 12 | 39,730 | L |
| | 1FXK_0 | 2 | A | A/45-10; A/71-106 | 36 | 111,794 | L |
| | 1FXK_1 | 2 | F | F/45-7; F/94-132 | 39 | 110,323 | L |
| | 1I6Z | 2 | A | A/145-166; A/207-186 | 22 | 55,594 | L |
| | 1ORJ | 2 | A | A/1037-1019; A/1103-1121 | 19 | 54,891 | L |
| | 1OX3 | 3 | A,B,C | A/48-79; B/48-79; C/48-79 | 32 | 84,665 | L |
| | 1QVR | 2 | A | A/403-417; A/449-435 | 15 | 46,102 | L |
| | 1SG2 | 2 | C | C/49-63; C/89-75 | 15 | 42,754 | L |
| | 1XOU | 2 | A,B | A/156-184; B/6-34 | 29 | 75,249 | L |
| | 1YT1 | 2 | B | B/81-92; B/171-182 | 12 | 31,684 | L |
| | 1ELR | 2 | A | A/327-316; A/335-346 | 12 | 39,730 | L |
| Electron transport | 1B71 | 2 | A | A/84-98; A/142-128 | 15 | 50,667 | L |
| | 1J30 | 2 | A | A/82-96; A/140-126 | 15 | 46,871 | L |
| | 1LM3 | 2 | D | D/41-27; D/65-79 | 15 | 28,734 | L |
| Endocytosis | 1HVV | 2 | B,D | B/208-233; D/233-208 | 26 | 57,069 | L |
| | 1L4A | 2 | B,C | B/188-212; C/14-38 | 25 | 64,306 | L |
| | 1URU | 2 | A | A/148-131; A/175-192 | 18 | 70,658 | L |
| Viral | 1EBO_0 | 3 | A,B,C | A/4-25; B/4-25; C/4-25 | 22 | 56,697 | L |
| | 1EBO_1 | 3 | A,B,C | A/57-92; B/57-92; C/57-92 | 36 | 82,300 | L |
| | 1EIA | 2 | A,B | A/128-145; B/145-128 | 18 | 28,358 | L |
| | 1EZJ | 4 | A,B,C,D | A/53-92; B/53-92; C/53-92; D/53-92 | 40 | 57,996 | L |

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|-----------|--------|---|---------|---------------------------------------|----|----------|---|
| | 1G2C | 3 | S,U,W | S/164-192; U/164-192; W/164-192 | 29 | 71,159 | L |
| | 1G5G | 3 | A,B,C | A/172-218; B/172-218; C/172-218 | 47 | 60,355 | L |
| | 1HTM | 3 | B,D,F | B/41-95; D/41-95; F/41-95 | 55 | 87,560 | L |
| | 1LJ2_0 | 2 | A,B | A/213-230; B/213-230 | 18 | 35,182 | L |
| | 1LJ2_1 | 2 | A,B | A/281-299; B/281-299 | 19 | 52,173 | L |
| | 1MG1 | 3 | A,B,C | A/388-416; B/388-416; C/388-416 | 29 | 72,337 | L |
| | 1MOF | 3 | A,B,C | A/47-75; B/47-75; C/47-75 | 29 | 81,504 | L |
| | 1NO4 | 2 | A,B | A/36-71; B/36-71 | 36 | 140,015 | L |
| | 1SFK | 2 | A,B | A/94-77; B/77-94 | 18 | 34,311 | L |
| | 1SLQ | 3 | D,E,F | D/494-508; E/494-508; F/494-508 | 15 | 31,307 | L |
| | 1SVF | 2 | A,E | A/123-168; E/123-168 | 46 | 130,686 | L |
| | 1WYY | 2 | A,C | A/895-969; C/895-969 | 75 | 187,408 | L |
| | 1ZTM | 3 | A,B,C | A/183-211; B/183-211; C/183-211 | 29 | 51,093 | L |
| | 1ZVB | 3 | A,B,C | A/9-30; B/9-30; C/9-30 | 22 | 51,350 | L |
| | 2BEQ | 3 | A,B,C | A/923-948; B/923-948; C/923-948 | 26 | 61,930 | L |
| | 2C9L | 2 | Y,Z | Y/193-221; Z/193-221 | 29 | 100,017 | L |
| | 2FXP | 3 | A,B,C | A/20-47; B/20-47; C/20-47 | 28 | 76,456 | L |
| | 2GUM | 3 | A,B,C | A/528-542; B/528-542; C/528-542 | 15 | 40,127 | L |
| Synthetic | 1RH4 | 4 | A,B,C,D | A/10-32; B/10-32; C/10-32; D/10-32 | 23 | 2,359 | L |
| Collagen | 1BKV | 3 | A,B,C | A/2-30; B/32-60; C/62-90 | 29 | -398,815 | D |
| | 1CAG | 3 | A,B,C | A/1-29; B/32-60; C/61-89 | 29 | -446,710 | D |
| | 1CGD | 3 | A,B,C | A/1-30; B/31-60; C/61-90 | 30 | -471,045 | D |
| | 1NAY | 3 | A,B,C | A/106-126; B/207-227; C/306-326 | 21 | -287,968 | D |
| | 2DRT | 3 | A,B,C | A/2-28; B/2-28; C/2-28 | 27 | -419,433 | D |
| | 2DRX | 3 | A,B,C | A/2-28; B/2-28; C/2-28 | 27 | -402,738 | D |
| | 3WN8 | 3 | A,B,C | A/1-23; B/1-23; C/1-23 | 23 | -328,969 | D |
| | 4AXY | 3 | A,B,C | A/1-18; B/1-18; C/1-18 | 18 | -218,711 | D |
| | 4Z1R | 3 | A,B,C | A/1-24; B/33-56; C/63-86 | 24 | -353,039 | D |
| | 6HG7 | 3 | A,B,C | A/1-36; B/1-36; C/1-36 | 36 | -487,006 | D |
| | 6W46 | 3 | A,B,C | A/1-30; B/1-30; C/1-30 | 30 | -451,952 | D |
| | 6W47 | 3 | A,B,C | A/2-26; B/2-26; C/2-26 | 25 | -342,840 | D |

¹ The PDB ID of the protein from which the superhelix was taken is indicated as the name of the superhelix. In cases where several superhelices from the same file were considered, they were assigned additional numeric indexes indicated after the underscore.

² Amino acid residues are indicated in the following format: chain_1/first_residue_1-last_residue_1; chain_2/first_residue_2-last_residue_2...

³ Helix lengths are designated in amino acid residues.

⁴ These chains are recorded in PDB files in a structure marked as BIOMOLECULE 2.