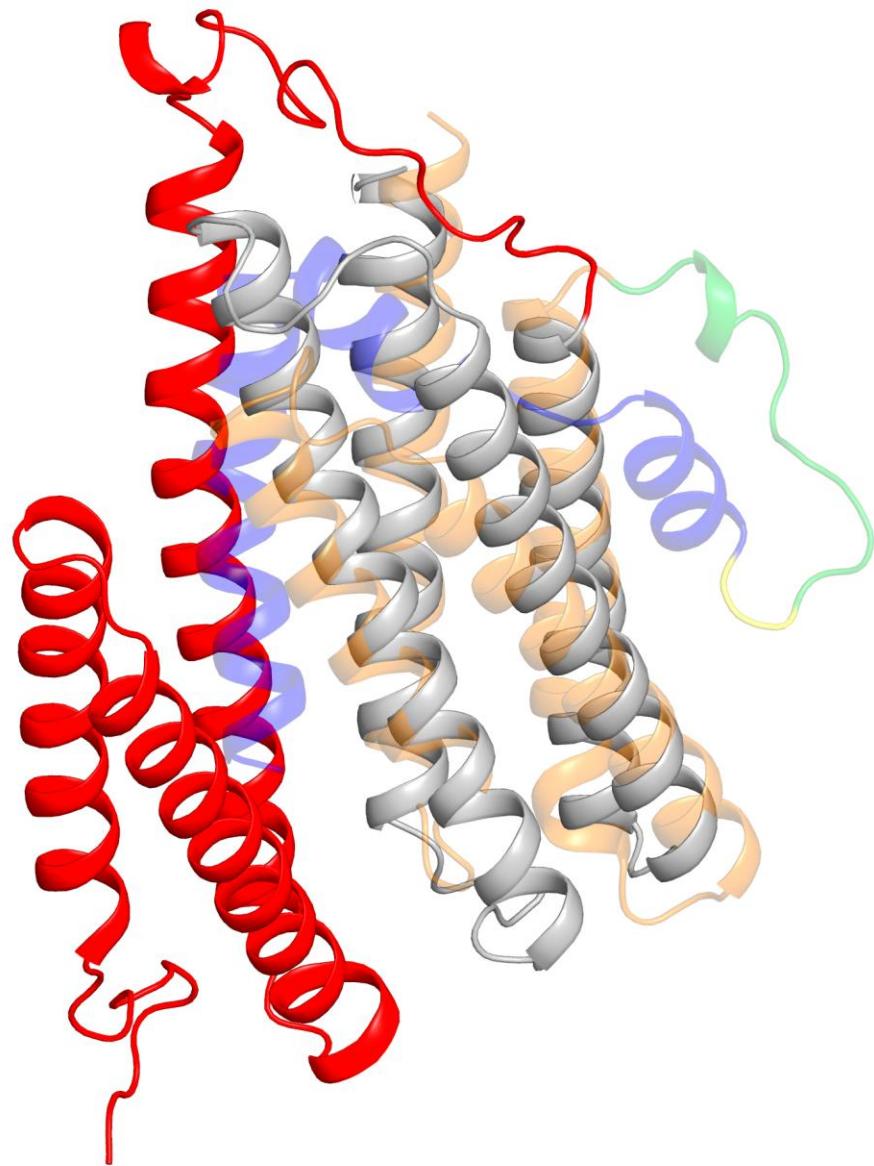
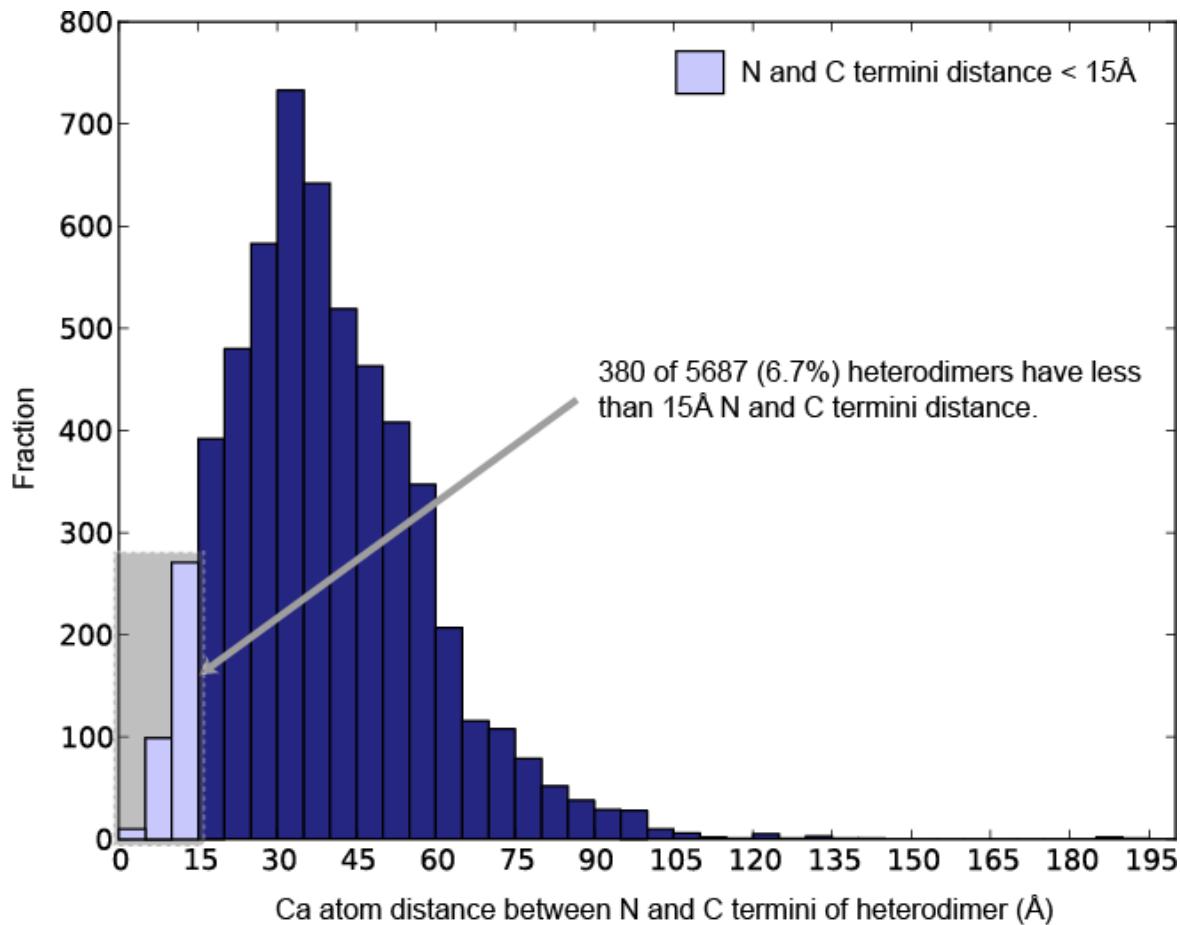


Supplementary Material



Supplementary Figure S1. Superposition of cytochrome C oxidase with the FliC•FliS fusion protein. The fusion protein is shown as semi-transparent. The color scheme for the fusion protein is the same as in Figure 2B. The last four transmembrane helices of the C chain of bovine heart cytochrome C oxidase (PDB code 3AG1) are shown in gray. These helices align with the region corresponding to the helical bundle of the FliS portion of the fusion protein. The first three transmembrane helices of the C chain of cytochrome C oxidase are shown in red.



Supplementary Figure S2. Distribution of the N to C termini distances of heterodimers. Heterodimers with N to C termini distances less than 15 Å are highlighted with light blue color.

Supplementary Table S1. Data collection and refinement statistics

Values in parentheses are for the highest resolution shell. The structure and data have been deposited in the PDB (code 4IWB)

Crystallographic data.

Space Group	P 2 ₁ 2 ₁ 2 ₁
Resolution Limits (Å)	1.75–54.69 (1.79-1.75) [*]
Cell (Å) (°)	a = 61.13; b = 66.16; c = 97.17; α = 90; β = 90; γ = 90
Completeness (%)	96.8 (83.3)
Redundancy	5.9 (4.0)
Rmerge (%)	7.3 (44.1)
I/σ	19.65 (3.2)

Refinement statistics

Reflections	37342
R-factor	20.89 (22.0)
R _{free}	23.23 (25.5)
RMS bonds (Å)	0.007
RMS angles (degree)	0.883
Mean B-value (Å ²)	22.91

Table S2. PDB codes of heterodimers.

A non-redundant set of codes of 160 Pdb entries identified to be heterodimeric.

1G2C 1DQQ 1EM8 1FFG 1FL7 1G08 1IZN 1JK9 1KB5 1KZY 1UHL 2ATP 1MQ1
1OR7 1S1Q 1VF6 1X2T 1Y8Q 1Y96 1YQ9 1ZT2 2AUS 2BC4 2BKY 2BYK 2G38
2NZ0 2OKR 2PMI 2POP 2PQA 2Q1Z 2Q86 2VJE 3A8Y 3AMJ 3F8U 3GTU 3OCD
3QVG 3TJ3 1W70 1KD8 2IPU 1YQW3JV6 1DML 1FOE 1KGY 1KKQ 1LGH 1OEY
1TQY 2D04 2H4C 2HZM 2I9B 2NXX 2OXG 2OZ1 2VDW3LPE 1OGY 1AUI 1BH9
1BND 1CI6 1DF0 1DQL 1EAQ 1EMT 1FIW 1FIZ 1FM0 1FXW 1G0B 1H2V 1IRE
1IXS 1JAT 1JEQ 1JJC 1JK0 1JLT 1JM7 1JMT 1JOW 1JW0 1M2V 1ORY 1OZ7
1PC8 1PON 1QAV 1R1K 1SB2 1SC3 1SPP 1TEJ 1U0I 1X7Y 1XOU 1XXW 1Y75
1YKH 1Z5X 1ZL8 1ZUN 2A5D 2ADG 2AHO 2AL1 2B3T 2BE9 2CDF 2D74 2DN3
2FIK 2GA9 2GP9 2H26 2H9A 2HKQ 2HSN 2HWZ2KFK 2KS1 2KSO 2L9B 2LBF
2NS1 2O97 2OGX 2PLX 2PNZ 2QK7 2QKW2WD5 2Y4I 2ZD1 3AXJ 3BRP 3C5X
3DGP 3F1P 3FP8 3IEY 3KXC 3MCB 3ML1 3MO1 3N40 3NV0 3NYB 2F4O 2Z7X
1L5G 1XHM 1KJM 1JCR

PDB codes of 12 heterodimers identified to have N to C termini distance of less than 15 Å.

1BND 1DF0 1JLT 1ORY 1SPP 1UHL 1YQW 2H4C 2I9B 2NZ0 2VJE 3DGP

Table S3. Sequence of the FliC•FliS fusion protein

Sequence of the FliC•FliS fusion protein. Residues corresponding to the FliC protein are shown in blue, residues corresponding to the two amino acid linker are shown in yellow, residues corresponding to the flexible N terminal region of FliS are shown in green, and the rest of the FliS protein is shown in orange. Any additional residues on the plasmid are shown in black.

1
MGRNVDFAKE MTEFTKYQIR MQSGVAMLAQ ANALPQLVLQ
41
LLRGAEAYFQ NOVETATPLE QIILLYDKAI ECLERAIEIY
81
DQVNELEKRK EFVENIDRVY DIISALKSFL DHEKGKEIAK
121
NLDTIYTIIL NTLVKVDKTK EELQKILEIL KDLREAWEEV
161
KKKVHHHHHH