

Reproducibility Statement

To ensure reproducibility and eliminate potential confounding factors from conversation history, all ChatGPT model interactions were conducted using independent sessions with the "Temporary Chat" option enabled, which disables memory and prevents conversations from appearing in chat history. Each model variant (GPT-4o, GPT-4.5, o3, o4-mini, and o4-mini-high) was queried multiple times with identical prompts in fresh sessions to avoid any potential memory leakage between conversations. All computational evaluations used AlphaFold2 via ColabFold with standardized parameters (0 recycles, single sequence input, model_2_ptm), and success criteria were objectively defined (pLDDT > 0.75 for confident designs, visual inspection for bundle formation). The experimental validation protocols, including E. coli expression conditions, purification methods, and circular dichroism spectroscopy parameters, are fully specified in the methods section. Raw sequence data and script used for analysis is made available via the Supplementary Material.