

Title: Supplementary Video 1

Description: The electron transfer pathway in *Mab* cyt-*bcc:aa3* oxidase is initiated in the substrate binding site located within the QcrB subunit. The binding of the substrate, menaquinol, leads to the transfer of the first electron to the cofactor [2Fe-2S], which then follows the increasing redox potential gradient towards the final acceptor: [2Fe-2S] < cyt-*c*_I < cyt-*c*_{II} < Cu_A < Heme *a* < Heme *a*₃ < O₂. The second electron from the substrate is transferred to Heme *b*_L < Heme *b*_H < Menaquinone for the regeneration of Menaquinol. ND-011458 binds to the substrate binding side, blocking the entry of menaquinol which results in the complete shutdown of the electron transfer pathway, eliminating the possibility of both oxygen reduction and menaquinol regeneration within the *Mab* cyt-*bcc:aa3* oxidase.