Title

Fusobacterial adhesins as therapeutic targets in cancer treatment

Authors

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Fusobacterium nucleatum (FN), a commensal bacterium residing in the human oral cavity, has been linked to increased tumor chemoresistance, progression and persistence of colorectal cancer, as well as various other cancers. FN facilitates its pathogenicity by expressing adhesins that facilitate the colonisation of cancers cells and suppress immune responses thereby reducing anti-tumor activity. Two fusobacterial adhesins, the CEACAM1 binding protein of *Fusobacterium* (CbpF) and Fibroblast activation protein-2 (Fap2) play crucial roles in FN's ability to colonize cancer cells and evade the immune system [1, 2]. Previous studies have elucidated the interactions between these adhesins and their respective host receptors, positioning CbpF and Fap2 as promising therapeutic targets. Our research focuses on screening small molecules capable of inhibiting these adhesins. Following this, cryo-electron microscopy (cryo-EM) will be used to elucidate the structural interactions between adhesins and inhibitors, advancing the development of effective therapeutic agents for cancer treatment.

References

1. Marongiu, G.L., et al., *Structural basis for immune cell binding of Fusobacterium nucleatum via the trimeric autotransporter adhesin CbpF* bioRxiv, 2024: p. 2024.09.17.613310.
2. Schöpf, F., et al., *Structural basis of Fusobacterium nucleatum adhesin Fap2 interaction with receptors on cancer and immune cells* bioRxiv, 2024: p. 2024.02.28.582045.