The Effects of Substrate Mechanics on Trypanosoma Brucei Adhesion
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BACKGROUND: TRYpanosoma BrucEi

TRYPANOSOMA BRUCEI CAUSATIVE AGENT OF AFRICAN SLEEPING SICKNESS

- Trypanosoma brucei are unicellular extracellular parasites
- A successful development of the parasite is crucial for the transmission of the disease
- During the development of Trypanosomes, the surface coat develops into a new coat with several million procyclin molecules

DEVELOPMENTAL STAGES AIDED BY MECHANICAL INTERACTIONS AND ADHESION

Methods

METHODS AND ANALYSIS TIMELINE

RESULTS: TRYpanosoma Brucei ADHESION

TREND: Initial adhesion increases as stiffness increases in control group. Initial adhesion decreases as stiffness increases in GPEET+

TREND: Consistent elongation per parasite despite stiffness and experimental group alterations

TREND: GPEET+ group has a higher adhesion strength than the control despite initially having less adhered

FUTURE DIRECTIONS

- Optimise ECM types and concentrations used to improve cell adhesion with applied forces
- Apply centrifugal forces to adhered cells to calculate adhesion strength

EXTRACELLULAR MATRIX PROTEINS

- Compare and analyse differences in mutated and non-transgenic parasites on varying matrix proteins

CONTRIBULATION ASSAYS

- Determine if cell morphology is conserved in adhered and non-adhered conditions

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