The Role of Centrosomes in Rhabdosarcoma Myogenesis

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Background

Rhabdomyosarcoma

Cell Line and Why it is Used

Centrosomes and What They Do

Centrinone B and Staurosporine

Proposal

Why this is important?

Figure I.
Electron micrograph of an amplified centrosome. This section shows nine centriole profiles (arrowheads) of an amplified centrosome of a cell in a human breast tumor. Normal cells typically have two or four centrioles. Bar = 0.5 µm.
https://www.sciencedirect.com/topics/neuroscience/centrosome

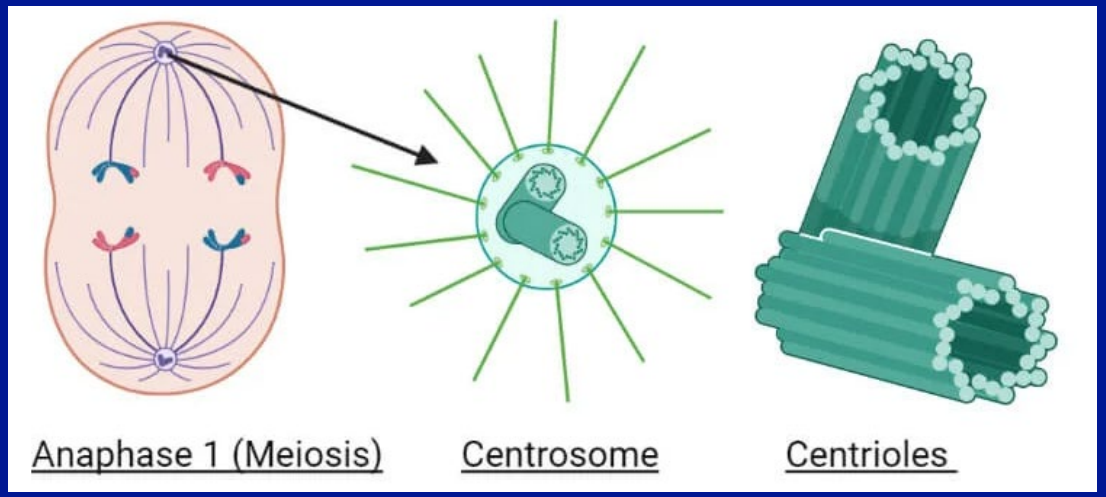

Figure II.
A diagram depicting anaphase I, the centrosome, and centrioles.
https://microbenotes.com/centrosome/

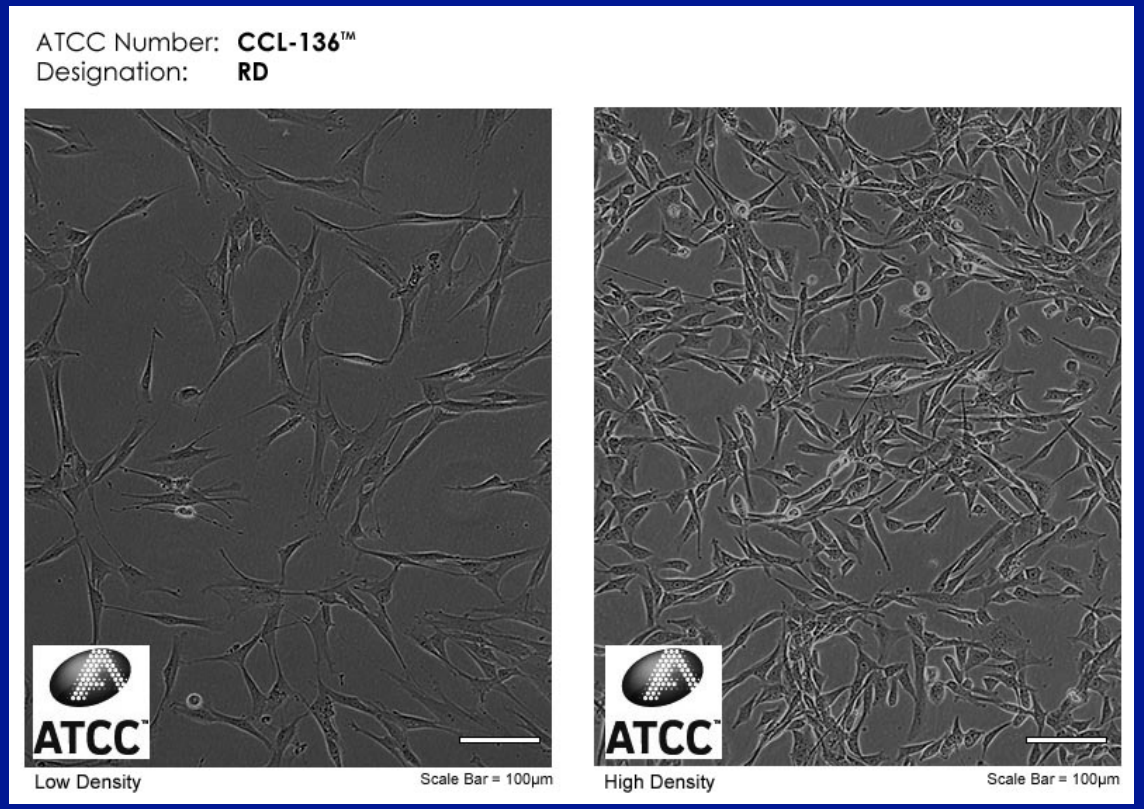

Figure III.
Rhabdomyosarcoma cell line, RD, specifically CCL-136 cell line. Figure shows the cells at a low density as well as in high density.
https://www.atcc.org/products/ccl-136

Research Question

If treated with Centrinone B, will the cell line CCL-136 undergo cellular death or arrest within a stage of mitosis?

Materials and Methods

Rhabdomyosarcoma cell culture. The growth media sample of rhabdomyosarcoma cells CCL-136 were grown in DMEM supplemented with 10% FBS and pen/strep under standard conditions.

Cell viability assay. Cells were treated with CellTiter -Glo 2.0 Buffer and Substrate and luminescence was recorded.

Centrinone B Treatment. Cells were treated the concentration of centrinone b for 72 hours.

Staurosporine Treatment. Cells were treated with Staurosporine for 19 hours

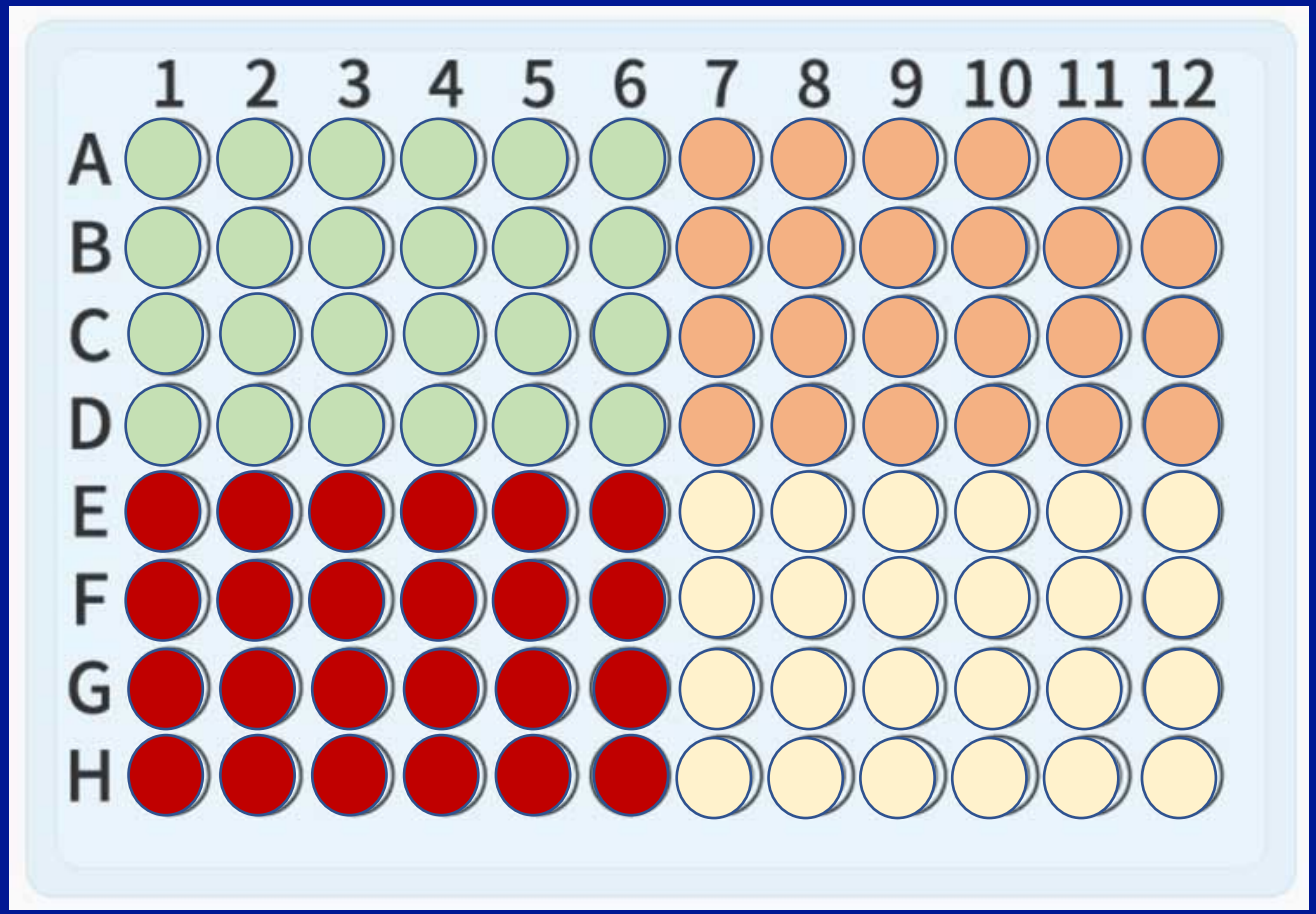

Figure IV.
Cells were then pipetted into 96 well plate at a density of 10,000 cells per well. Centrinone B was added to a quadrant of the 96 well plate for 72 hours. Staurosporine was added to a different quadrant for 19 hours. After a total of 3 days, cell titer glo 2.0 assay was used to determine the cell viability.

Trial Two

Step One	Culture the Cells
Step Two	Well Plate
Step Three	Centrinone B Treatment
Step Four	Cell Viability Assay

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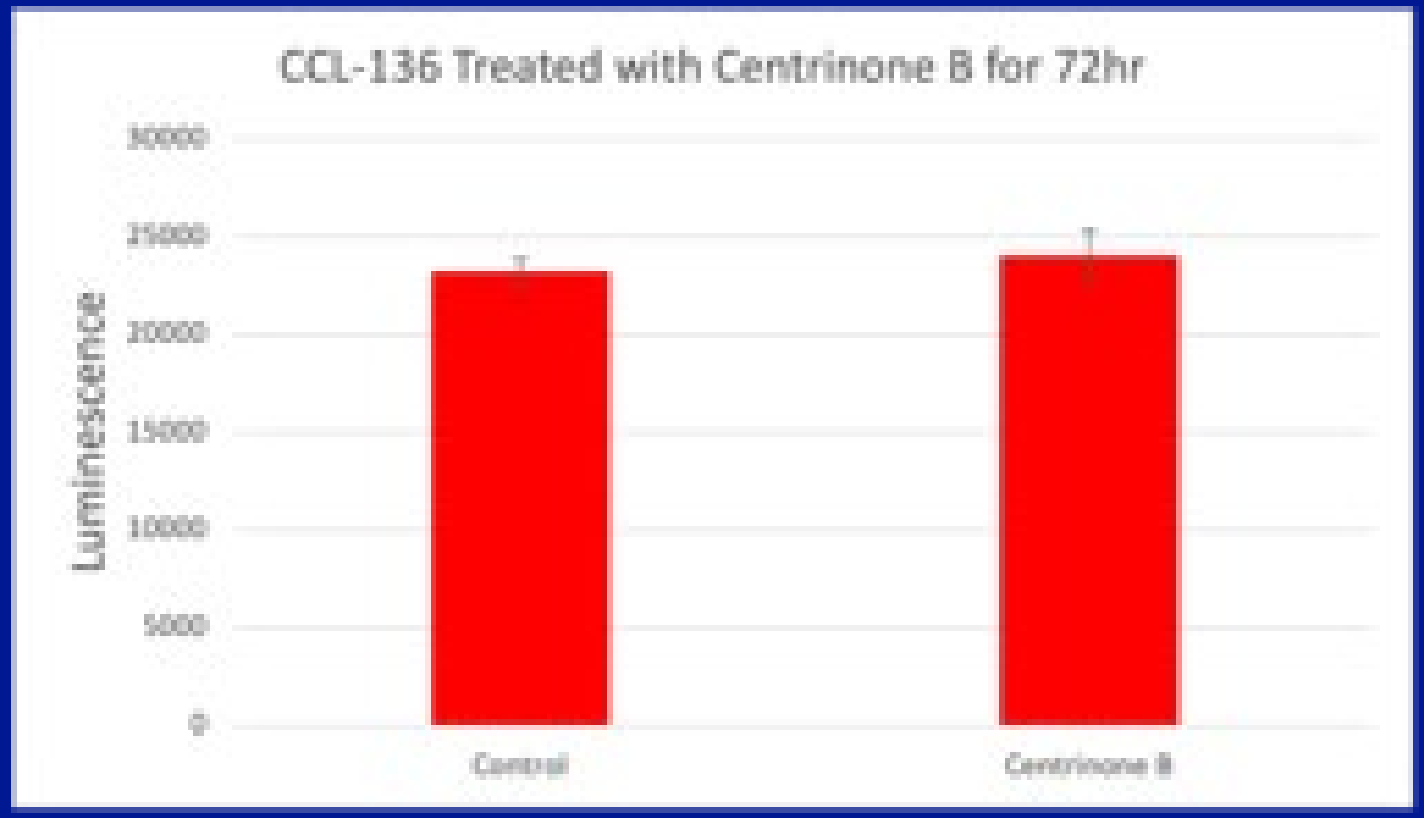
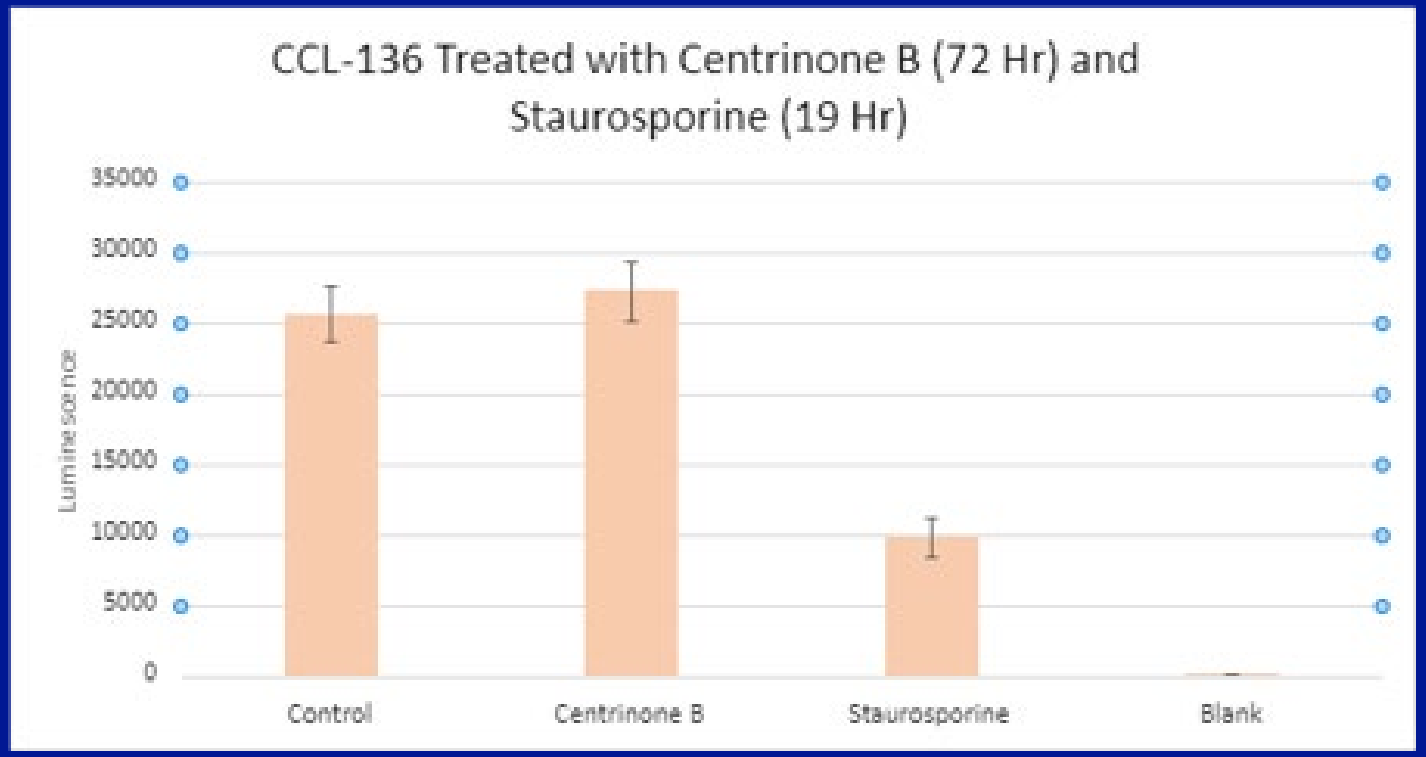
Step One	Culture the Cells
Step Two	Well Plate
Step Three	Centrinone B Treatment
Step Four	Staurosporine Treatment
Step Five	Cell Viability Assay

Results From Trial One



- Assumptions:
  - We expected that the depletion of centrosome would cause the cells to undergo cellular death or arrest within a stage of mitosis
- What occurred
  - There wasn't a significant change in the viability of the cells between the treated and untreated cells.

Results From Trial Two



- This trial was mainly performed as a positive control.
- The results verify the previous trial, and show that with Staurosporine, cellular death is possible.

Discussion

Previous Research

Literature on Centrinone B

Future Steps

Proposal

References

Research Posters