CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY

Name(s)
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Project Number
J0414

Project Title
Tumor Cells Associated in the Lymph Nodes

Abstract

Objectives/Goals
The objective of my project is to see if tumor cells could travel through the lymph system to metastasize to other parts of the body and the factors within the nodes that contribute to the spread.

Methods/Materials
10 microscope slides, 10 micro-centrifuge tubes, Phosphate Buffered Saline (PBS), 100 micro liter pipette, Gloves, Tweezers, cryosection, fixed ice cold acetone, antibody LYVE-1, antibody Cytokeratine, anti-a4B1,DAPI,dry ice, Ice, cover glass, mounting medium (florescent), florescent microscope.
1. Place 10 slides into two groups. 2. Label each slide:-Lymph node: -HT 29; -week 7. 3. Obtain 10 ependorff tubes label each tube: -ING 1; -ING 2; -MES 1; -MES 2; -BRA 1; -BRA 2; -TUMOR 1; -TUMOR 2; -LUNG 1; -LUNG 2. 4. Use 1000 micro liter pipette to place Phosphate Buffered Saline (PBS) in each centrifuge tube. 5. When all tubes are filled with PBS refrigerate to a temperature of 4 C over night. 6. Using a cryosection cut refrozen lymph nodes of tumors into 5 micrometers. 7. Carefully place the node on one side of the microscope slide. 8. Place slides in a 20 C freezer. 9. Thaw slides of the lymph nodes. 10. Using a pap pen mark a square around the lymph nodes on the slides. 11. Apply anti-body that recognizes lymph vessels and cytokeratin. 12. Apply a second antibody that recognizes the first. 13. Place slides in a fixed ice cold acetone for two minutes. 14. Air dry slides for 30 minutes. 15. Rehydrate slides in PBS three times for five minutes each time. 16. Permeabilize slides in trixton for 60 seconds or 1 minute. 17. Block PBS 5% BSA- Place slides in PBS and into a 4 C room overnight. 18. Place slides under the florescent microscope to observe. (same procedures for testing a4 B1 only use antibody that recognizes a4b1).

Results
Tumor cells can travel through the lymph system to metastasize to other parts of the body. Several factors may also add to the amounts of tumor cells. Such as cytokeratin and the number of lymph vessels. After testing the lymph vessels it is safe to state that a certain amount of lymphatic vessels and integrins do contribute to myriads of tumor cells.

Conclusions/Discussion
Tumor cells may travel through the lymph nodes to metastasize. Lymphatic vessel play an important role in the spread of tumor cells due to the integrins and amount of lymph vessels found in the nodes.

Summary Statement
My project is about the metastasizes of tumor cells in the lymph system and what factors may contribute to the spread.

Help Received
Carmela Arstill Director of the COPC Science Enrichment Program helped drive to UCSD; Used Lab equipment at Moores Cancer Center in UCSD under the supervision of Dr. Judith Varner and Barbara Garmy-Susini; Mr. Ryan Smith, Mrs. May Lualhatti, and Mrs. Easter Finley, help check my work;