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Defining the role of NRAS in melanoma maintenance

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Defining the Role of NRAS in Melanoma Maintenance

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Malignoma is the most rapidly increasing malignancy among young people in the U.S. (*The incidence of melanoma has increased by more than 600 percent over the last forty years. (ACS statistics: www.cancer.org)*

Malignoma is the leading cause of cancer death in women aged 25-29.

- **Trait**: Male sex and increasing age are significant risk factors.*

- **Prognosis**: *The 5-year survival for advanced stages of the disease is ~20%.

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**Molecular Analysis of Human Melanoma**

**Gene List**

- **Familial/Sporadically**
  - NRAS
  - BRAF
  - P53
- **Alterations**
  - Fus point mutation
  - Point mutation
  - Increased expression
  - Decreased expression

**Results**

- **NRAS** is a major driver of melanoma development.

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**Initial Validation of Melanoma Associated Genes**

*Expression of RAS in SK-MEL cells and growth in soft agar. Cell line from unfractionated E14 melanoma tumor.**

- **RAS** is an oncogene involved in the regulation of cell growth and proliferation.

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**RCAS/TVA Melanoma Mouse Model System**

*TVA reporter was used to label the melanoma tumors.*

- **TVA** is a non-replicating mammalian cell vector.

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**Schematic of the canonical RAS effector pathways RAF-MEK-ERK and PI3K-Akt and the mutations that most often activate these pathways in melanoma patients**

- **RAF**
  - 
- **MEK**
  - 
- **ERK**
  - 

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**Future Directions**

- **Prevention and early detection of melanoma**
  - *Combination therapy to target the underlying cancer.

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