NOVOGEN

ASX: **NRT**
NASDAQ: **NVGN**

Bio CEO & INVESTOR CONFERENCE

Graham Kelly PhD
CEO & Executive Chairman

Forward-Looking Statements

This presentation contains forward-looking statements. Actual events or results may differ materially from those projected in any of such statements. Additional information concerning factors that may cause actual events or results to differ from those projected is contained in the Company's most recent 20-F and 6-K filings, as well as other subsequent filings with the SEC and Nasdaq.

Novogen: the bare facts

Dual listing: ASX (‘NRT’) & Nasdaq (‘NVGN’)

- 1994 ASX
- 1998 Nasdaq
- 2001 IPO subsidiary MEI Pharma Inc
- 2012 Reverse takeover by Triaxial; separation from MEI Pharma

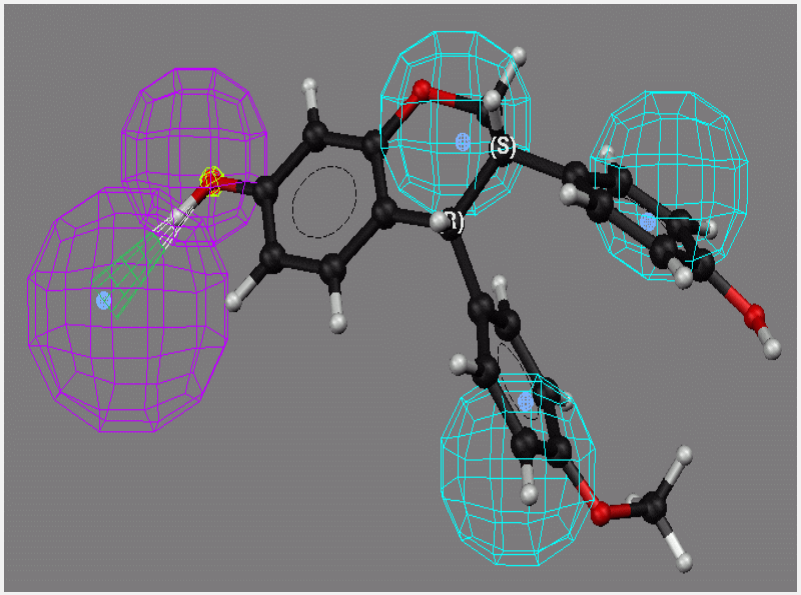
Offices: Sydney, Australia and New Haven CT.

Drug discovery company:

- **Oncology**
- **Regenerative medicine**
- **Degenerative diseases**
- **Autoimmune diseases**

What does an investment in Novogen give me?

Two first-in-class drug technologies
Two new drug targets

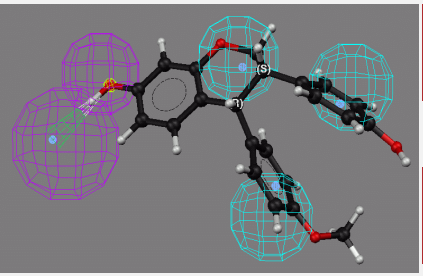


Super-Benzopyrans

Anti-Tropomyosins

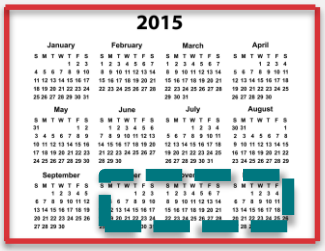
What does an investment in Novogen give me?

….and a pipeline of 3 ‘clinic ready’ oncology drugs



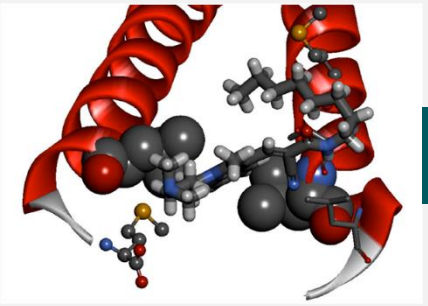
Cantrixil

- **Malignant ascites**



TRXE-009

- **Malignant melanoma**
- **Paediatric brain cancers**



Anisina

- **Prostate cancer**
- **Neuroblastoma**

What distinguishes Novogen?

Taking the path less travelled
Two important new drug targets
Broad, not limited, cancer spectrum

Cytotoxic chemotherapy

Pros:
- **It works**
- **It's a validated means of treating cancer**

Cons:
- **Many cancers are insensitive**
- **Low response rate in many cancers**
- **Development of drug-resistance**
- **Highly off-target ➔ toxic**
- **No effect on cancer stem cells ➔ tumor recurrence**

Why we need to do something

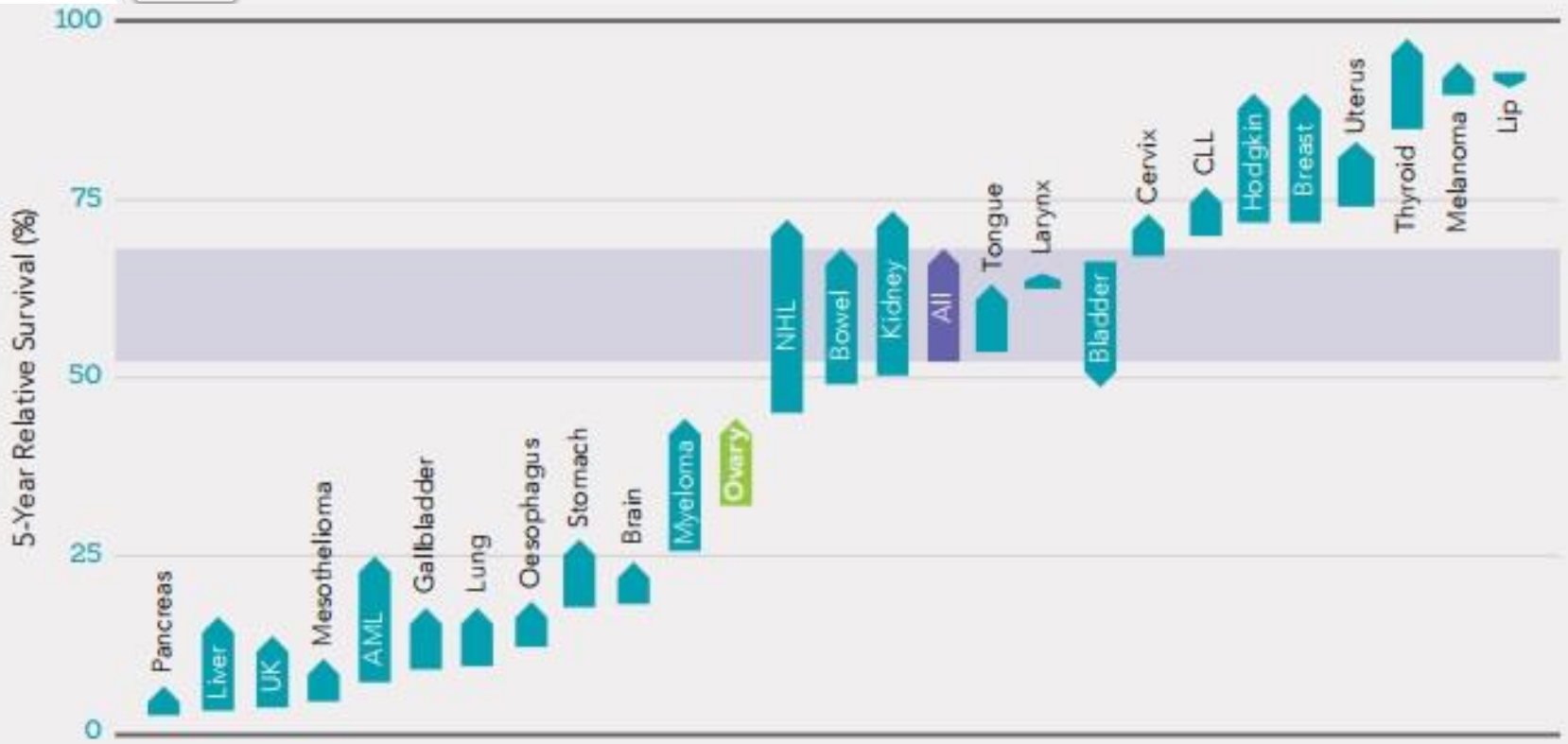
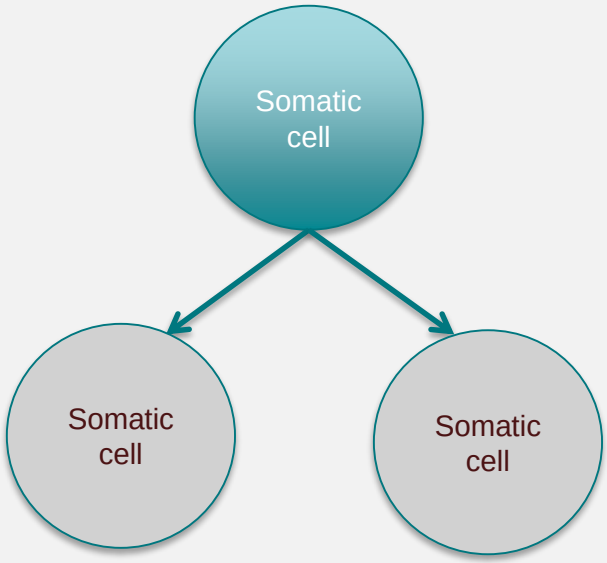


Figure 1: Change in 5-year survival from ovarian cancer over the period 1982-87 to 2006-2010: comparison with other cancers in women.[1]

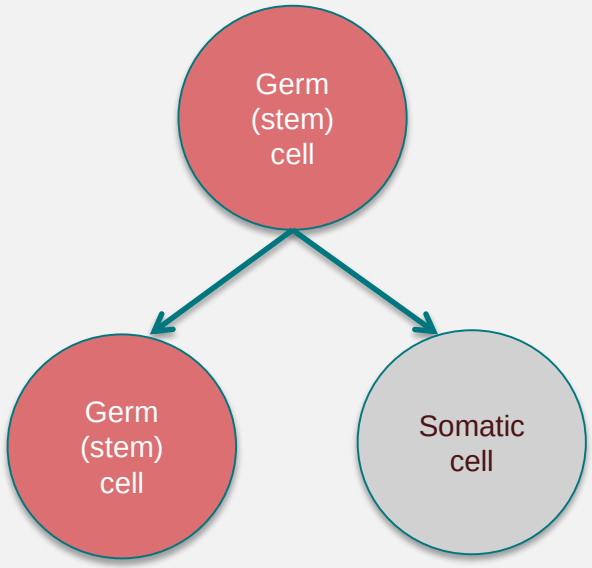
Abbreviations: AML = Acute myeloid leukaemia, NHL = Non-Hodgkin lymphoma, CLL = Chronic lymphocytic leukaemia, Melanoma = melanoma of the skin.

Why current therapies are failing us

Tumors are heterogeneous



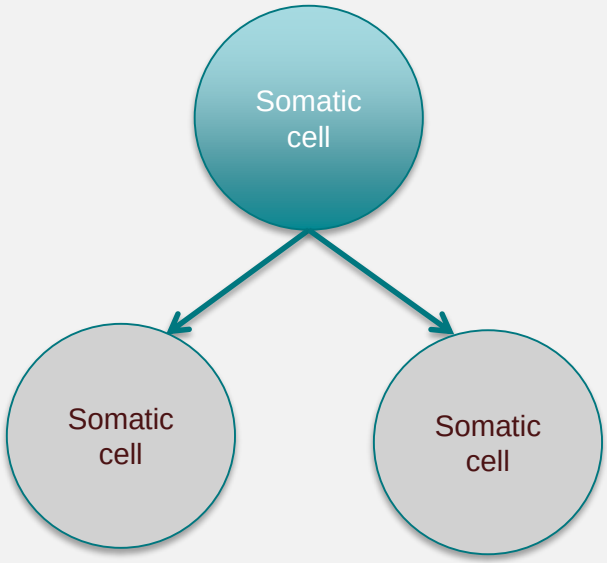
Symmetric Division



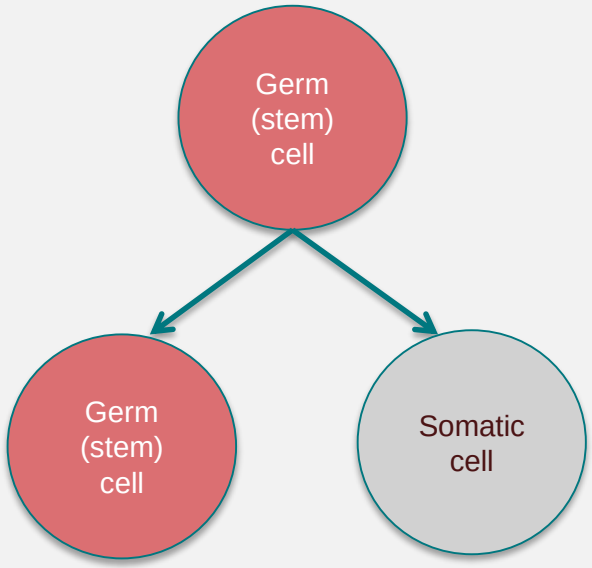
Asymmetric Division

Why current therapies are failing us

Tumors are heterogeneous



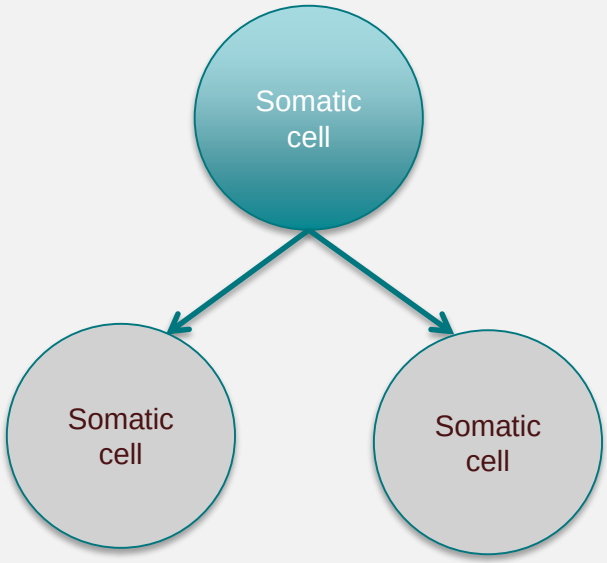
- Rapidly dividing
- Finite lifespan
- Bulk of tumors

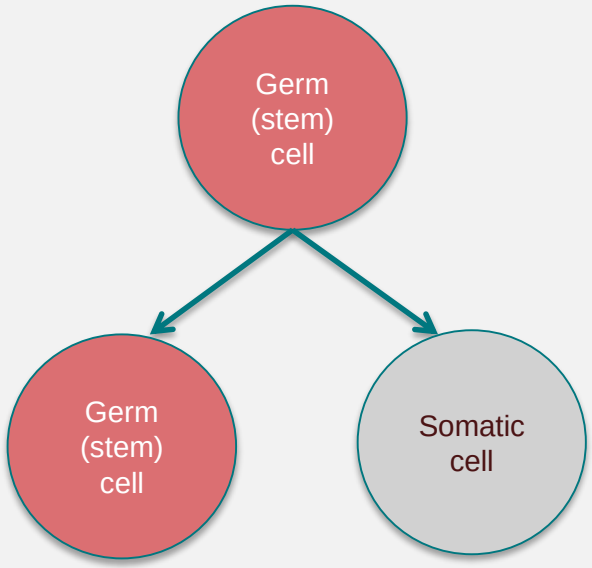


- Slowly dividing
- Indefinite lifespan
- Self-replicate

Why current therapies are failing us

Tumors are heterogeneous



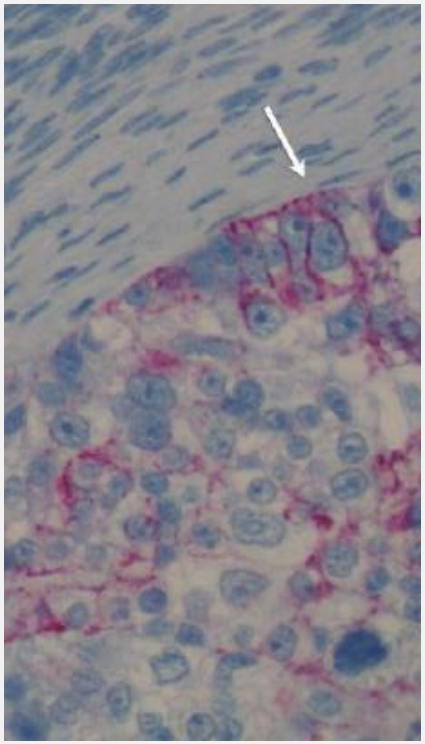


CAN RESPOND
to chemotherapy and radiotherapy

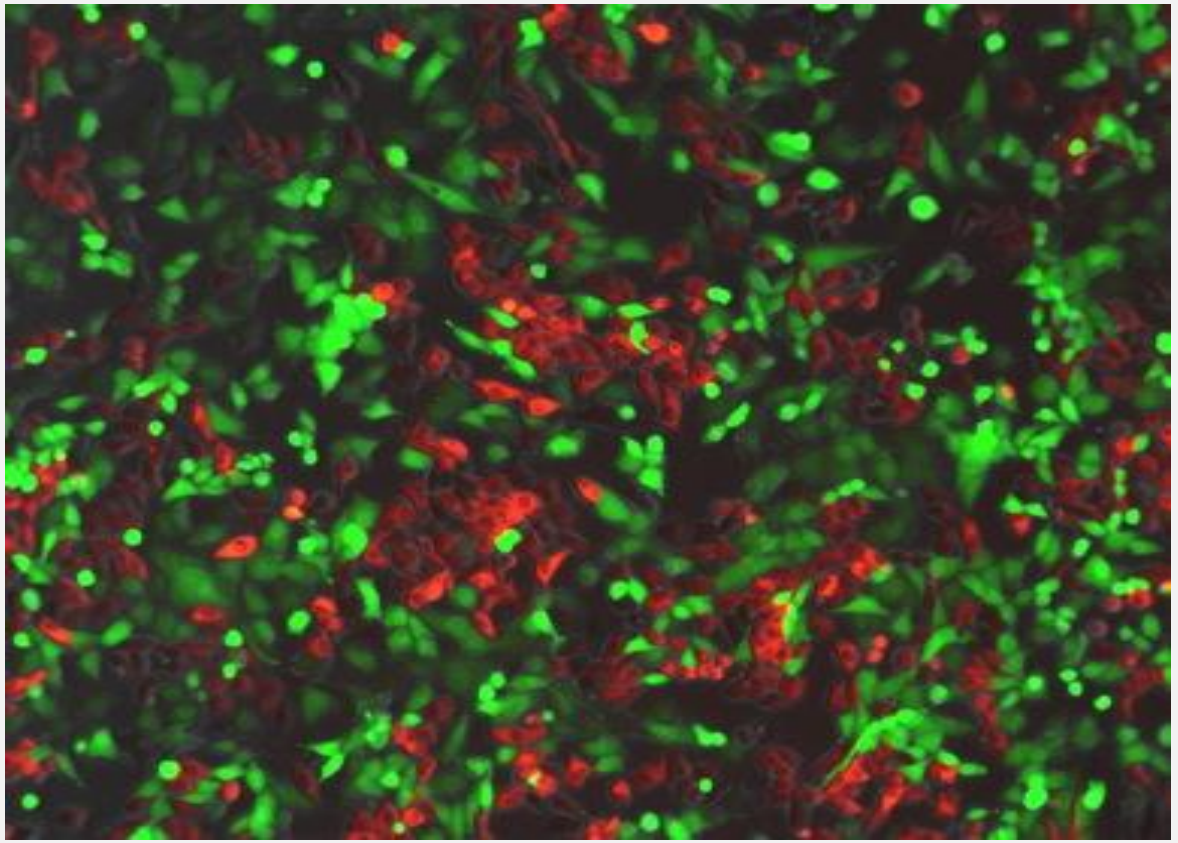
DO NOT RESPOND
to chemotherapy and radiotherapy

Why current therapies are failing us

Tumors are heterogeneous



Human ovarian cancer biopsy.
Red stain = cancer stem cells

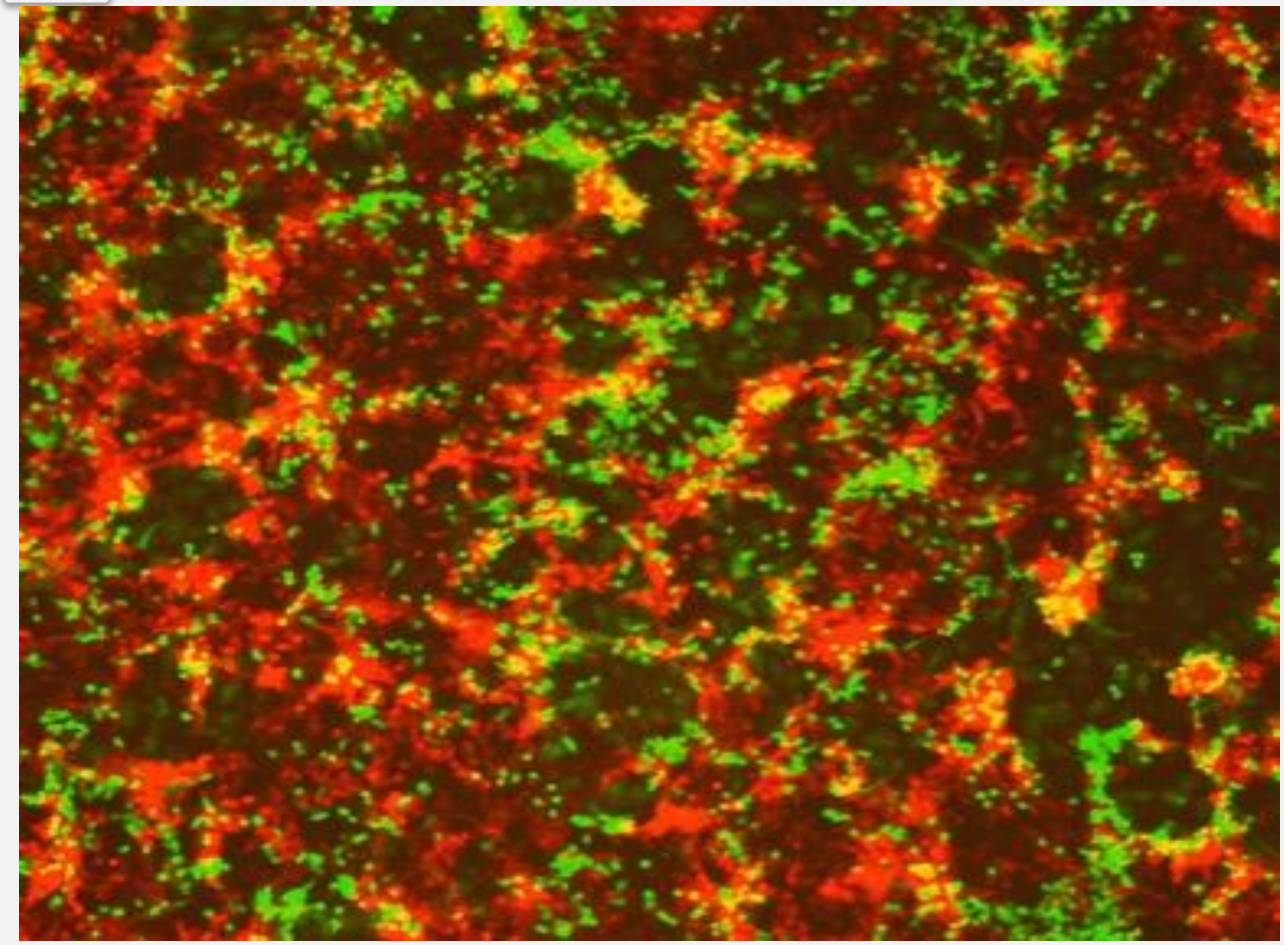


Fresh co-culture of ovarian cancer stem cells (GREEN) and daughter (somatic) cancer cells (RED)

Photos courtesy of Prof G Mor Yale Medical School

Why current therapies are failing us

Tumor heterogeneity



Co-culture after 3 days

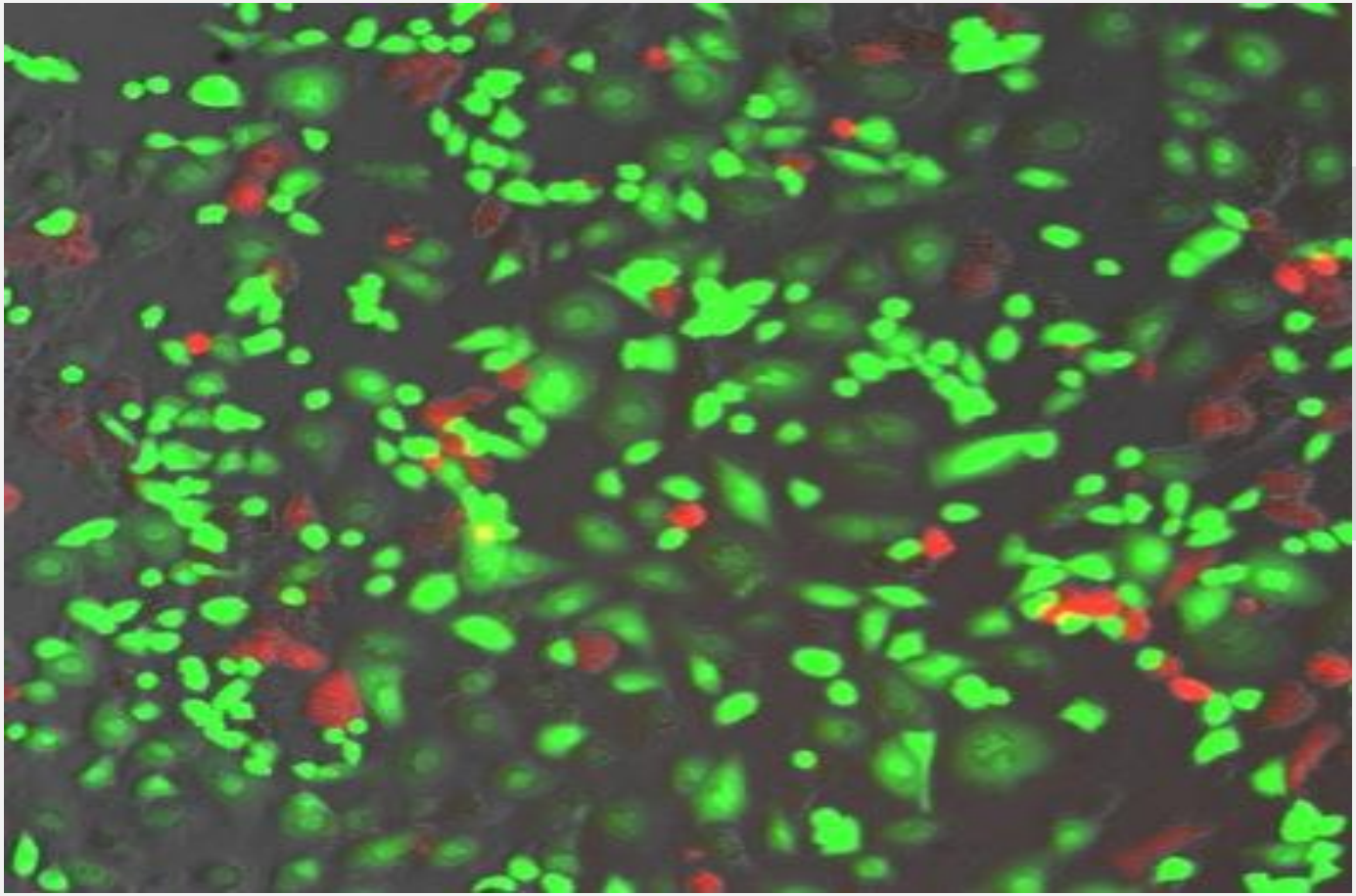
.

Daughter cancer cells dominate due to more rapid expansion.

Photos courtesy of Prof G Mor Yale Medical School

Why current therapies are failing us

Cancer stem cells insensitive



Co-culture after addition of Paclitaxel.

Daughter cancer cells largely have died.

Cancer stem cells continue to proliferate.

Photos courtesy of Prof G Mor Yale Medical School

The challenge

Meaningful improvements in cancer patient survival and conversion of malignant cancer into a chronic manageable disease requires:

eradication of the cancer stem cell population
to prevent tumor propagation and tumor recurrence

more effective debulking of the somatic cancer cell population
in more cancer types and in more patients

Novogen oncology program

AIM: To make chemotherapy work

- **In more cancer phenotypes**
- **In more individuals**
- **In a more effective way**

Cytotoxic to the FULL HIERARCHY of cells within a tumor

BUT

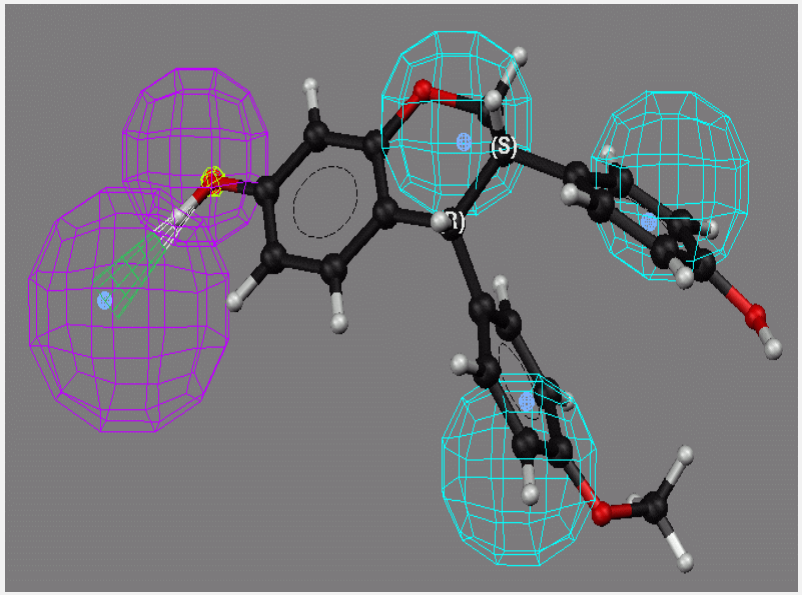
with a preferential ability to kill CANCER STEM CELLS.

Super-Benzopyrans

First-in-class drug targeting the cancer cell's skeleton.

Synergizing the action of anti-mitotics (taxanes/vinca alkaloids) to provide greater somatic cancer cell killing

ANISINA

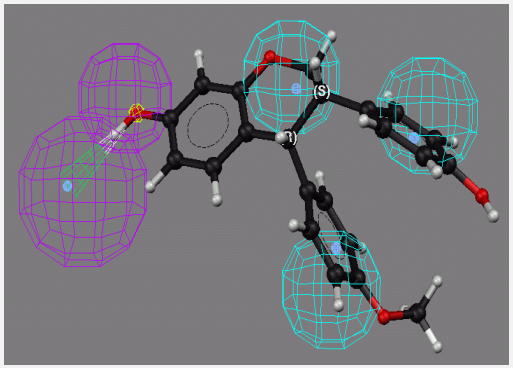


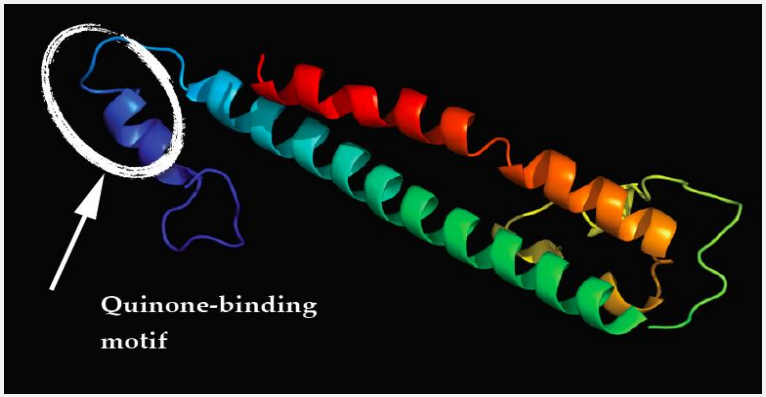
Super-benzopyrans

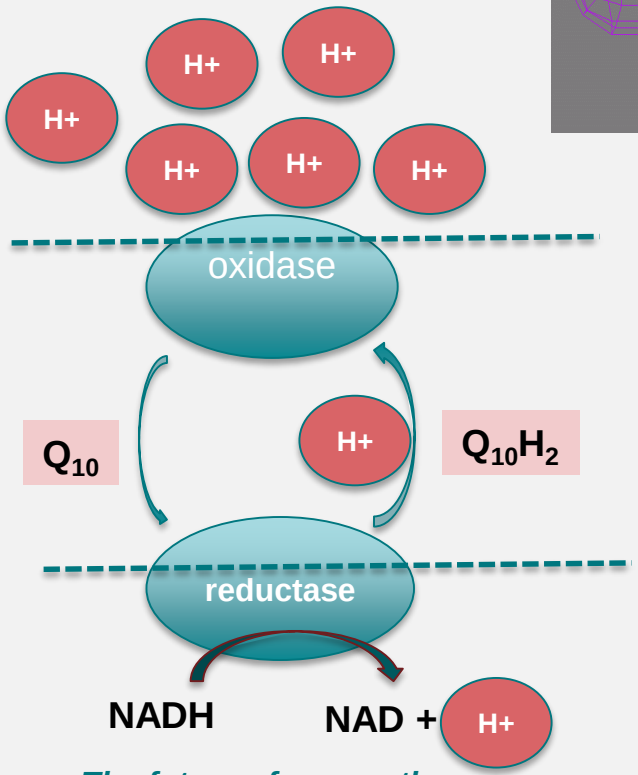
Small molecule cytotoxic

Platform #1: SUPER-BENZOPYRANS

Inhibiting H^+ transfer within a cancer cell





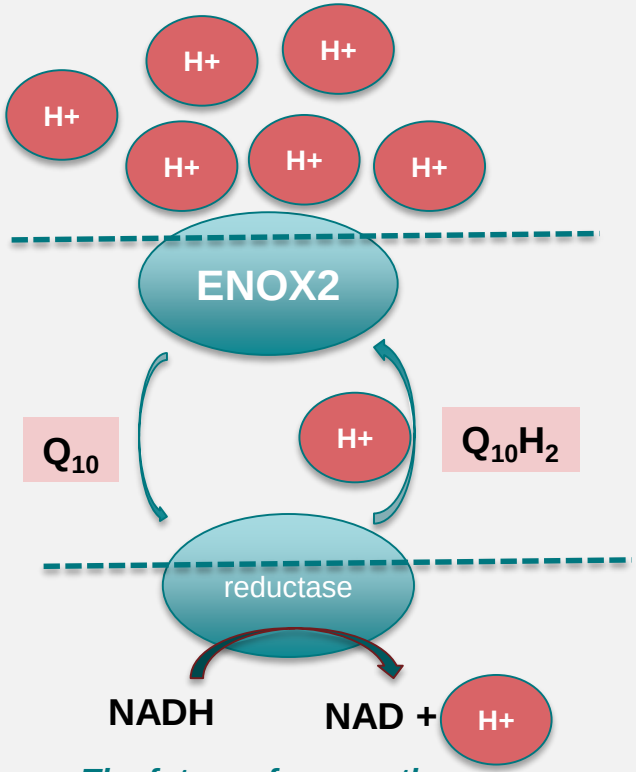


- Constitutive NADH oxidase known as ENOX1
- Splice variant of NADH oxidase located on chromosome Xq25
- Known as ENOX2.
- Universal oncogene.

Platform #1: SUPER-BENZOPYRANS

TRXE-002

Introducing a new concept of *secondary (or enabling) mutations*

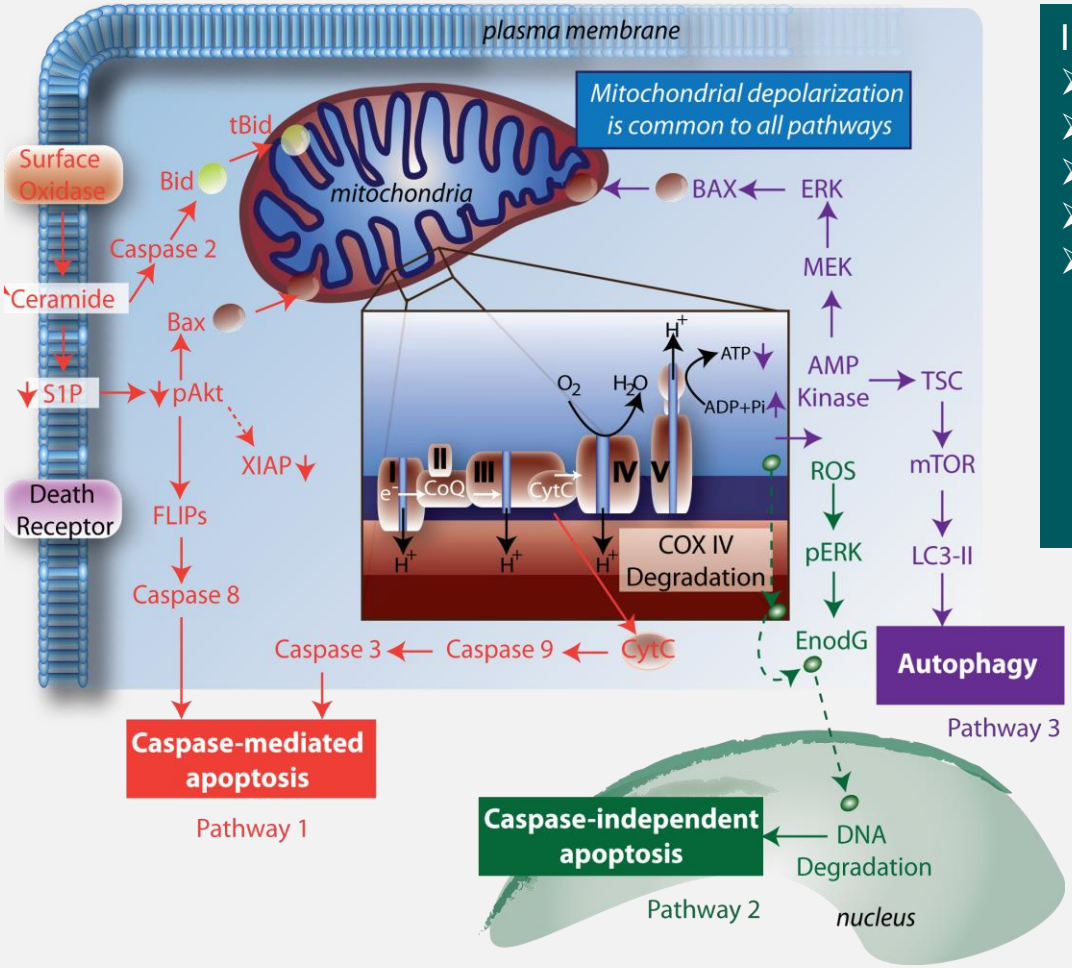


Enabling mutations:

- Common to all tumor phenotypes
- Common to both cancer stem cells and their daughter cells
- Multiple isoforms
- Highly on-target effect

Platform #1: SUPER-BENZOPYRANS

Multi-pathway cytotoxicity



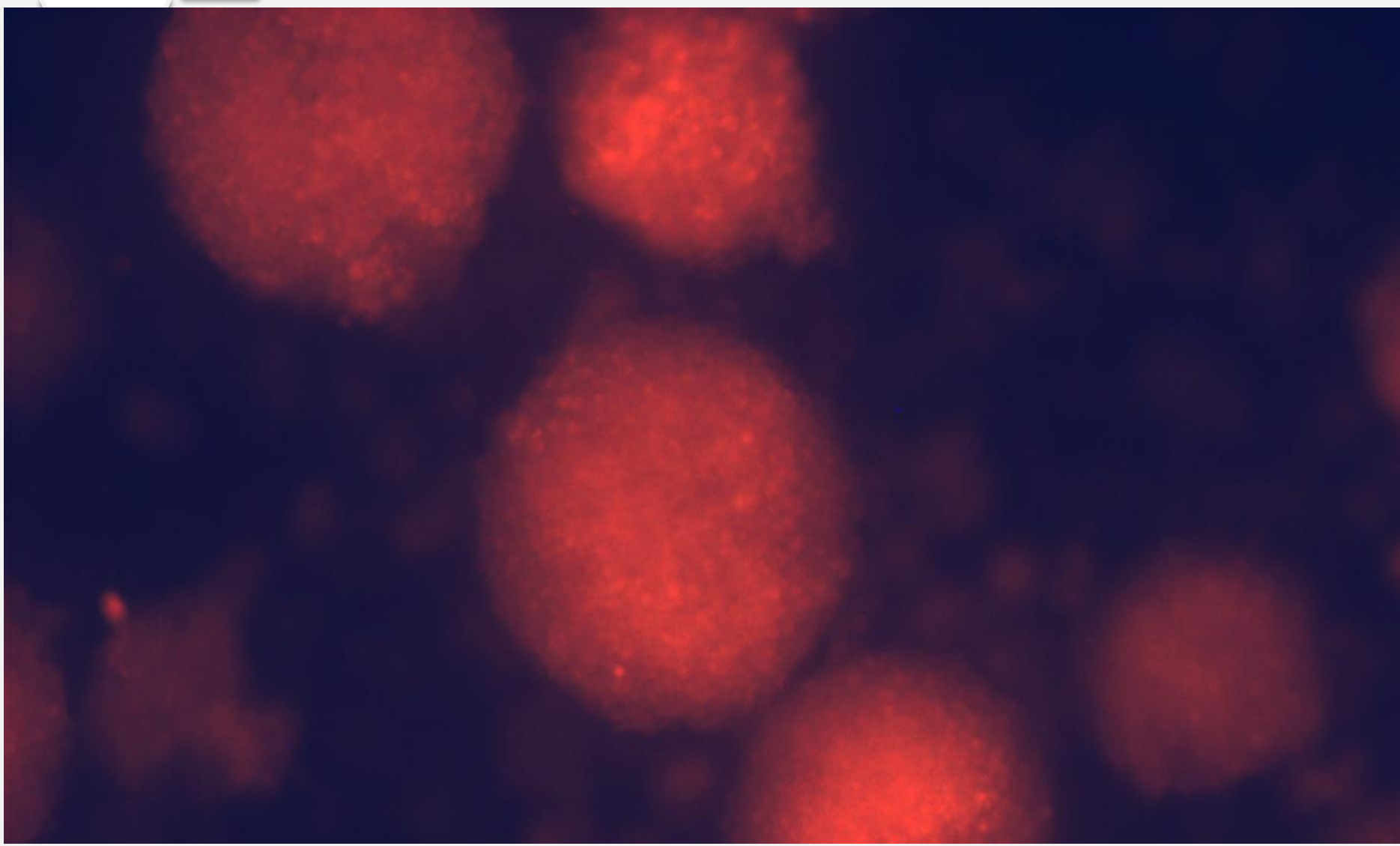
Inhibition of proton pump:

- Loss of trans-membrane electron potential
- Depolarization of mitochondrial membrane
- Respiratory distress
- Shut-down of ATP production
- Caspase activation

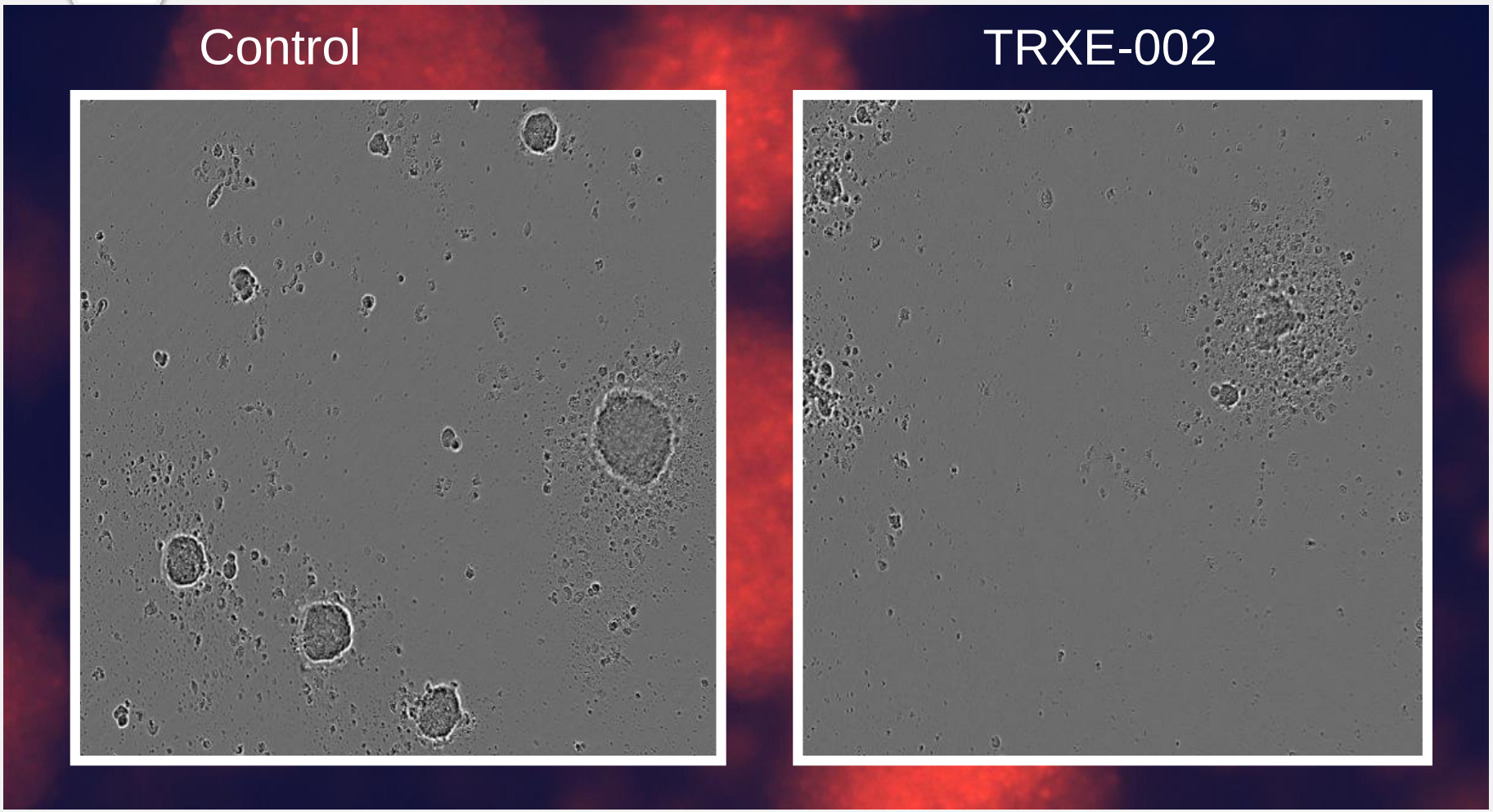
⬇

Cell death

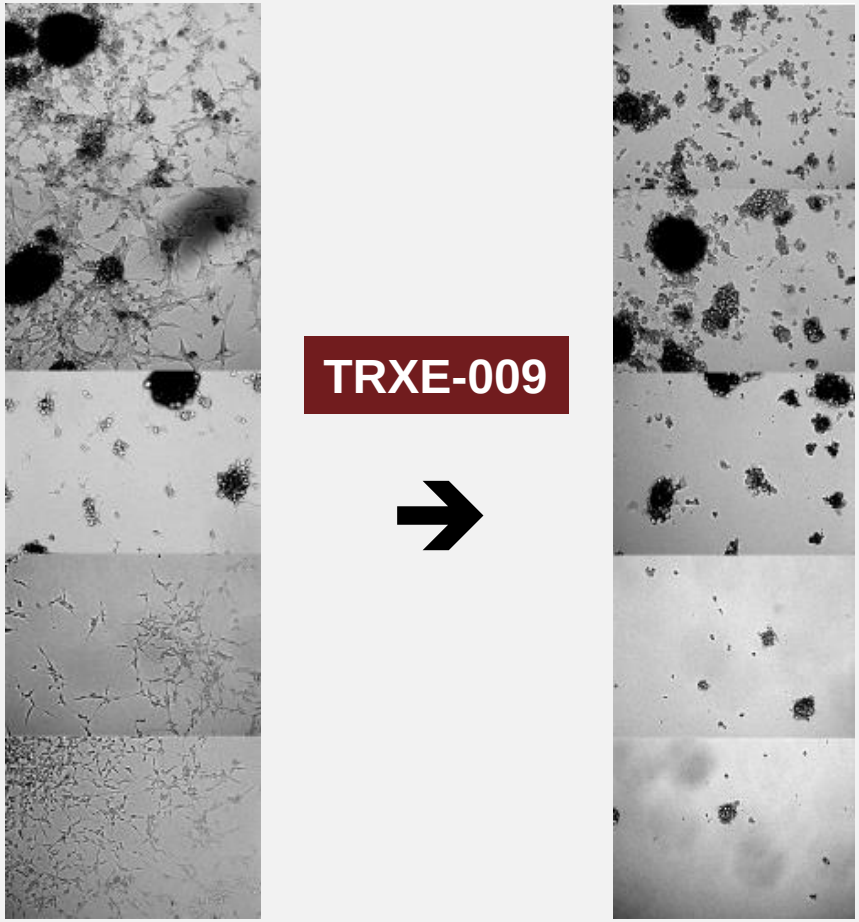
SBPs – efficient killers of ovarian cancer stem cells



SBPs – efficient killers of ovarian cancer stem cells



SBPs – efficient killers of GBM cancer stem cells



SBPs: structure = phenotype preference

TRXE-002

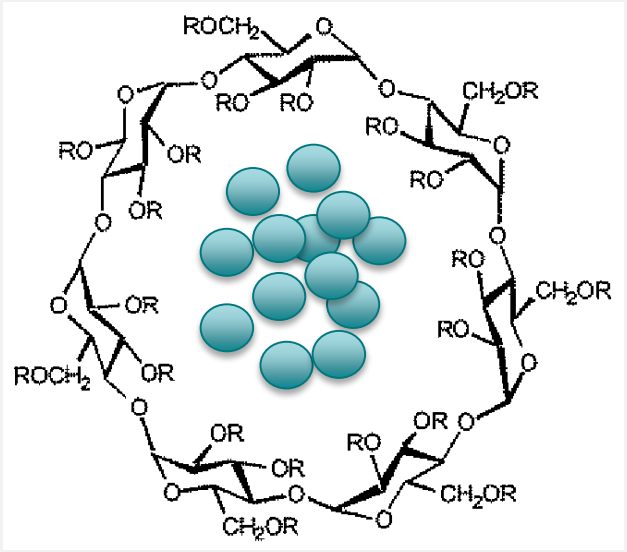
- **Ovarian cancer**
- **Colo-rectal cancer**

TRXE-009

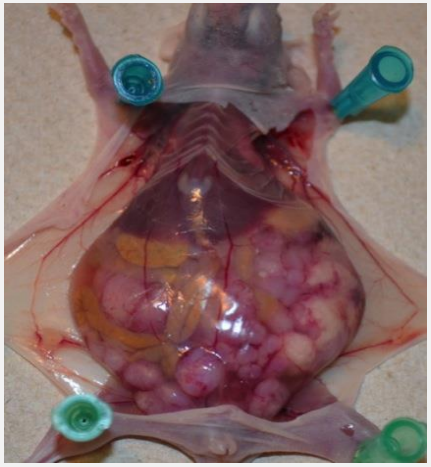
- **Glioblastoma**
- **Medulloblastoma**
- **Diffuse intrinsic pontine glioma**
- **Neuroblastoma**
- **Melanoma (B-Raf positive and negative)**

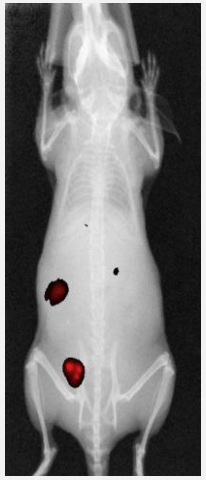
? Neural tube/neural crest cancers

Cantrixil: proof of concept



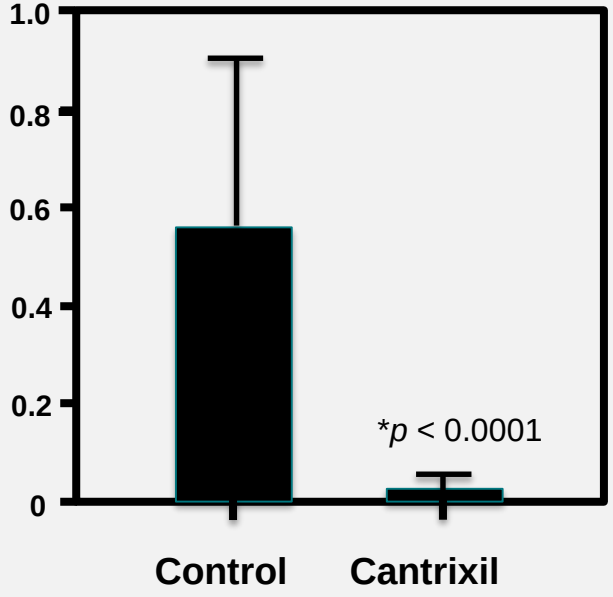
Construct of TRXE-002 in Captisol





control

Cantrixil



Cantrixil

First purpose-built intra-cavity chemotherapy

Peritoneal cavity	**Malignant ascites**
Pleural cavity	**Malignant pleural effusion**

Cantrixil

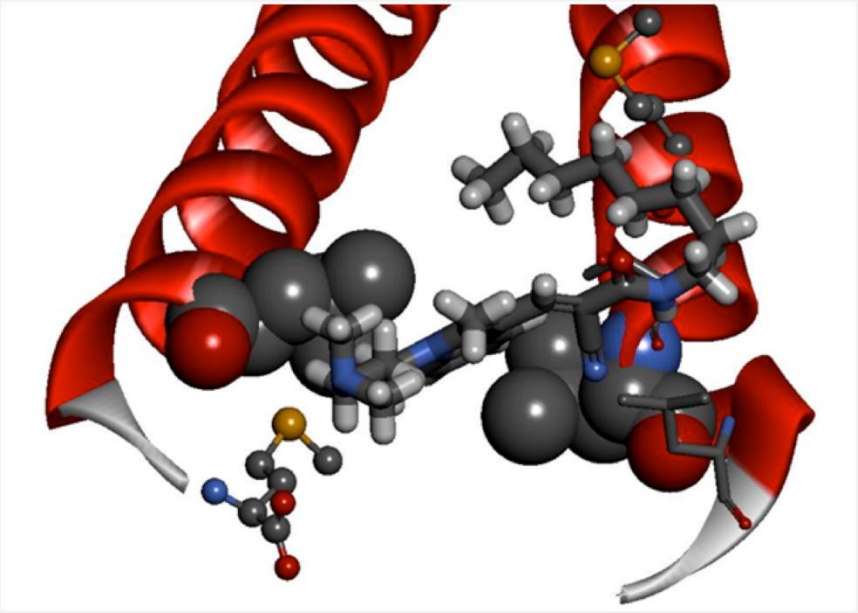
Malignant ascites

- **20-50% of all cancer patients develop malignant ascites.**
- **No standard of care; currently palliative treatment only.**
- **2-6 month median survival time.**

Cancers arising within abdomen:
Ovary, uterine, colo-rectal, pancreatic, gastric

Cancers arising outside of abdomen:
Breast, melanoma, mesothelioma, lymphoma

Platform #2: ANTI-TROPOMYOSINS



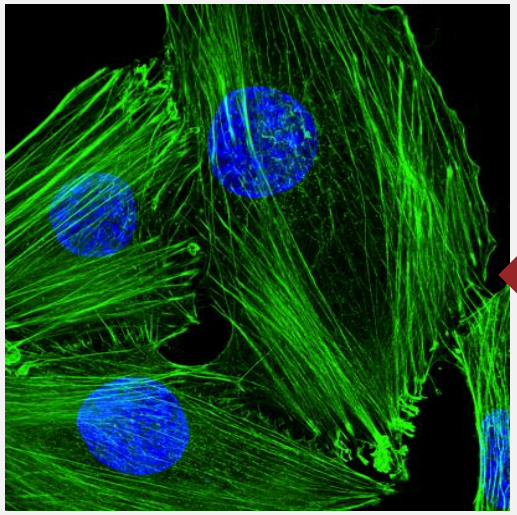
Anisina

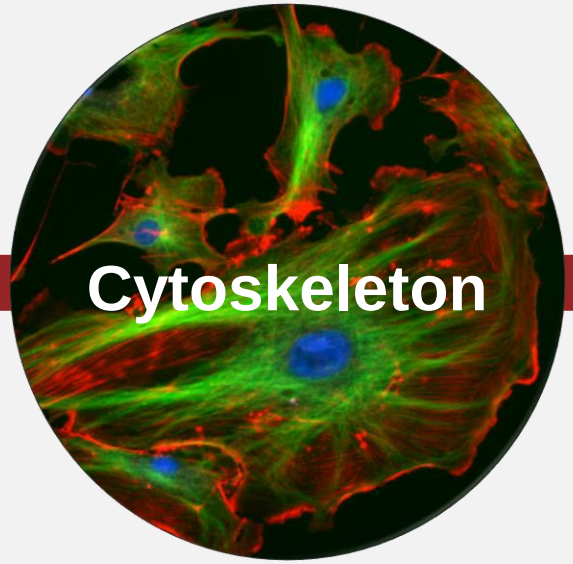
Small molecule cytotoxic

The cytoskeleton: a key drug target

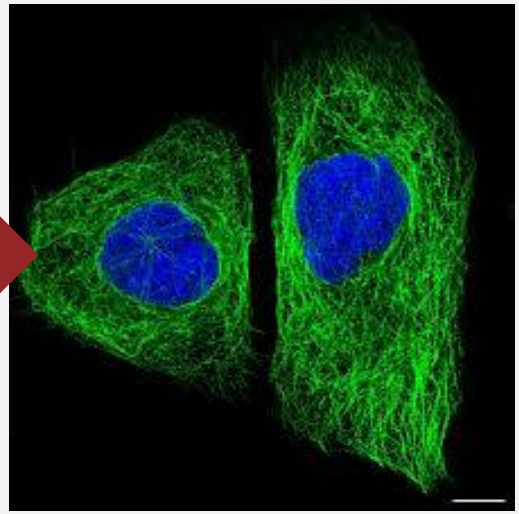
- **Cell shape, cell signaling, cell movement**
- **Cell division**

Microfilaments





Microtubules

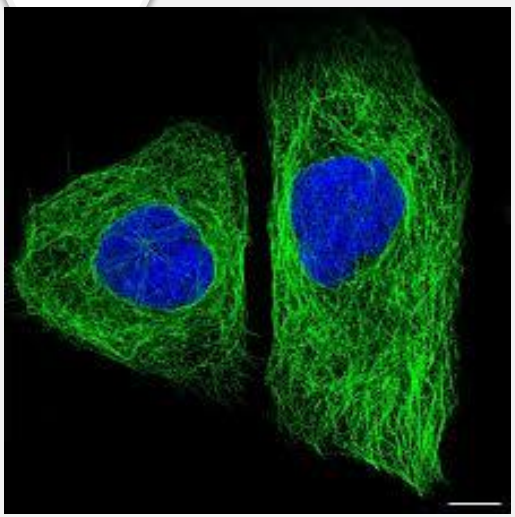


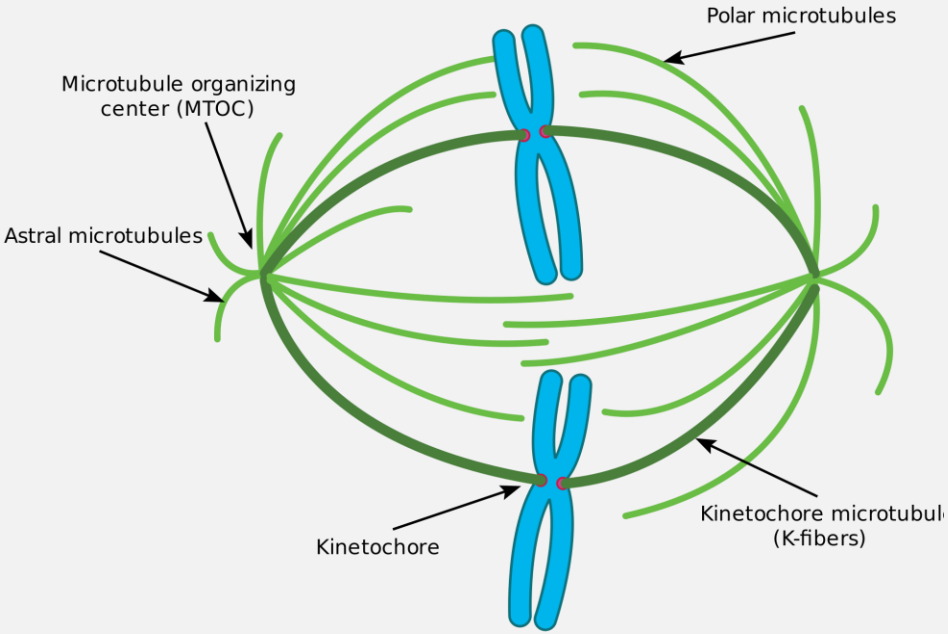
NOVEL DRUG TARGET

ACCEPTED DRUG TARGET

Microtubules: essential for mitosis

Microtubules





Anti-microtubule cancer drugs are a drug development success story despite:

- **Limited sensitivity of cancer phenotypes**
- Rapid development of drug-resistance
- **Significant toxicity**

Taxanes:

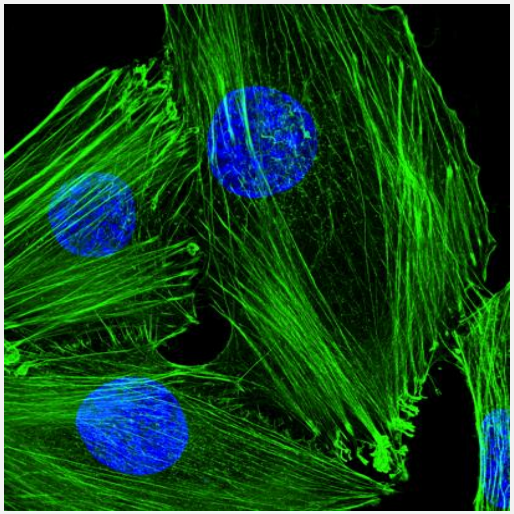
- **Paclitaxel**
- **Docetaxel**
- **Abraxane**

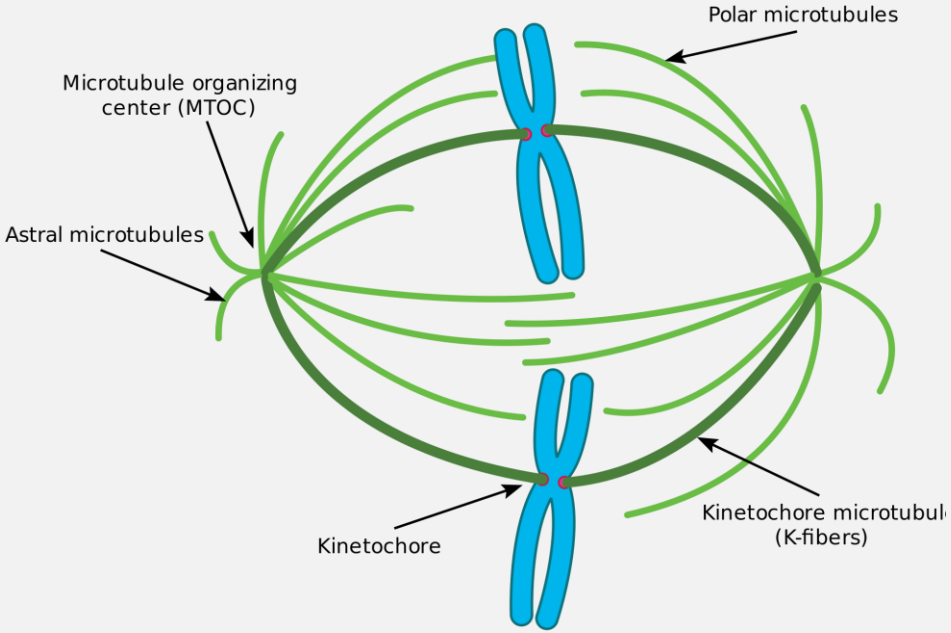
Vinca alkaloids:

- **Vincristine**
- **Vinblastine**
- **Vineralbine**

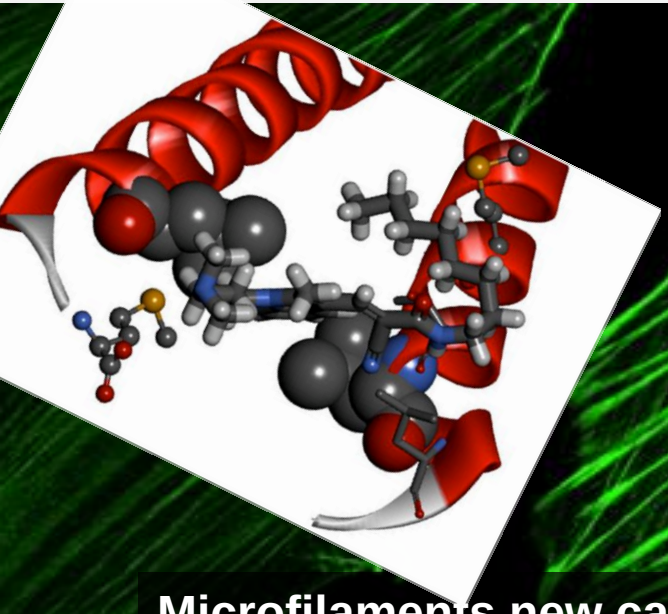
Microfilaments: also essential for mitosis

Microfilaments





Microfilaments: also essential for mitosis



Actin
(two cytoskeletal isoforms)

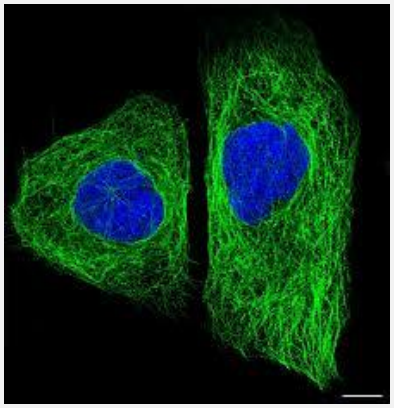
Tropomyosin
(>40 isoforms identified)

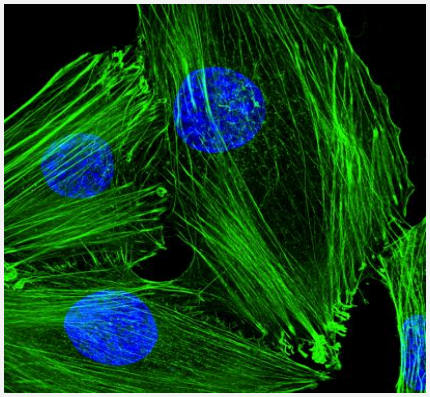
Microfilaments new cancer drug target:

- Tropomyosin component targeted
- Tm5NM1 tropomyosin isoform specific target
- Cancer cells dependent for survival on Tm5NM1

Inhibiting microtubules + microfilaments

Providing the first opportunity to comprehensively destroy the cancer cell's cytoskeleton





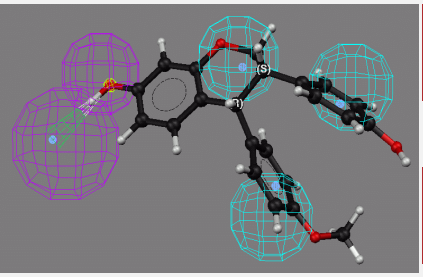
Anti-cancer potency of taxanes or vinca alkaloids = 1

Anti-cancer potency of anti-tropomyosins = 1

Synergy:
Anti-cancer potency of anti-tropomyosin + taxanes/vinca alkaloids = 100

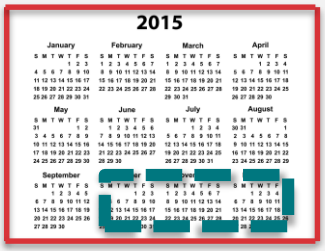
What does an investment in Novogen give me?

….and a pipeline of 3 ‘clinic ready’ oncology drugs



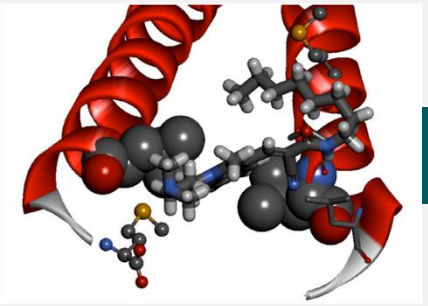
Cantrixil

- **Malignant ascites**



TRXE-009

- **Malignant melanoma**
- **Paediatric brain cancers**



Anisina

- **Prostate cancer**
- **Neuroblastoma**

www.novogen.com