Recent Research at Carbone Cancer Center

Lay Abstracts

Lay abstracts use simple language and designs to make it easier to understand and share research. Use this book to learn more about the groundbreaking cancer research happening at Carbone!

Community Outreach & Engagement Team

We help cancer researchers and Wisconsin communities work together to lower the burden of cancer. We make lay abstracts of Carbone research to share this work with Wisconsin communities and beyond.

Contact

Dr. Jennifer Bird

jebird@wisc.edu

COE In-Reach Coordinator

Scan to see all lay abstracts

https://cancer.wisc.edu/resources-for-the-community/

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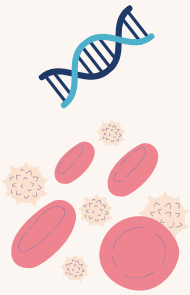
Types of Cancer Research

How different types of research help us fight cancer

BASIC RESEARCH

What causes cancer?
What happens in the body when we have cancer?
What could treat cancer?



Basic scientists study cancer cells, DNA, and other data to understand how cancer grows, spreads, and may be treated.

TRANSLATIONAL RESEARCH

How does cancer grow in animals?
Is a cancer treatment safe in animals?

Translational scientists study cancer in animals or in a model that is similar to the human body.

POPULATION RESEARCH

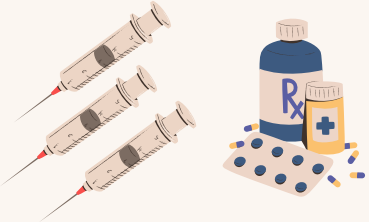
How common is cancer in a population?
How are cancer numbers changing over time?

Population scientists study groups of people to better understand cancer patterns, causes, risk factors, and trends.

CLINICAL RESEARCH

Can we safely and effectively treat cancer in humans?

Clinical scientists look at how safe a new treatment or test is, how well it works, and what side effects there are. Clinical trials can also compare tests or treatments.



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Scan to see research at Carbone Cancer Center

How to talk about alcohol and cancer risk

What's the problem?

2 in 3 adults with cancer drink alcohol, but often do not know this can cause worse health outcomes

What did we study?

We asked 12 cancer doctors and 13 people with cancer experiences about how to discuss alcohol drinking and cancer risk.

What did we find?

Cancer doctors do not regularly talk with patients about alcohol and cancer risk. Patients want doctors to talk with them about alcohol in a non-judgmental way.

What's next?

In cancer settings, doctors can use a tool called Screening and Brief Intervention for alcohol drinking and non-judgmental terms to talk about alcohol and cancer risk.

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Freiberg, Carroll, LoConte. Poster presented at American College of Physicians Meeting in 2024.

Increasing clinical trial involvement of rural and Native Americans

Community health educators can provide education to **build partnerships** with rural communities.

Researchers **provided education on clinical trials** from the Center to Reduce Cancer Health Disparities. 62 people from rural and Native American communities in northern Wisconsin did the education.

What did we find?

After the education, rural and Native American individuals were more likely to want to be involved in clinical trials.

What's next?

This educational training can improve involvement of rural and Native American groups in future studies.

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Carroll et al. Building Partnerships to Improve Clinical Trial Accrual in Rural and Native American Communities through Community Health Educator Interventions. . ASCO QCS 2024.

How doctors talk about clinical trials

What did we study?

We asked 21 cancer doctors to talk to model patients about cancer treatments.

What did we find?

- < 1 in 2 doctors recommended the patient join a clinical trial.
- Doctors spent less time talking about clinical trials with Black compared to White patients.

Doctors need support to talk about clinical trials more equitably.

Doctors could benefit from having support and structured discussions with patients to communicate clinical trial information.

Research Article

Monica Arun Patel et al. JCO 2024.

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New breast cancer treatments could block protein BRD8

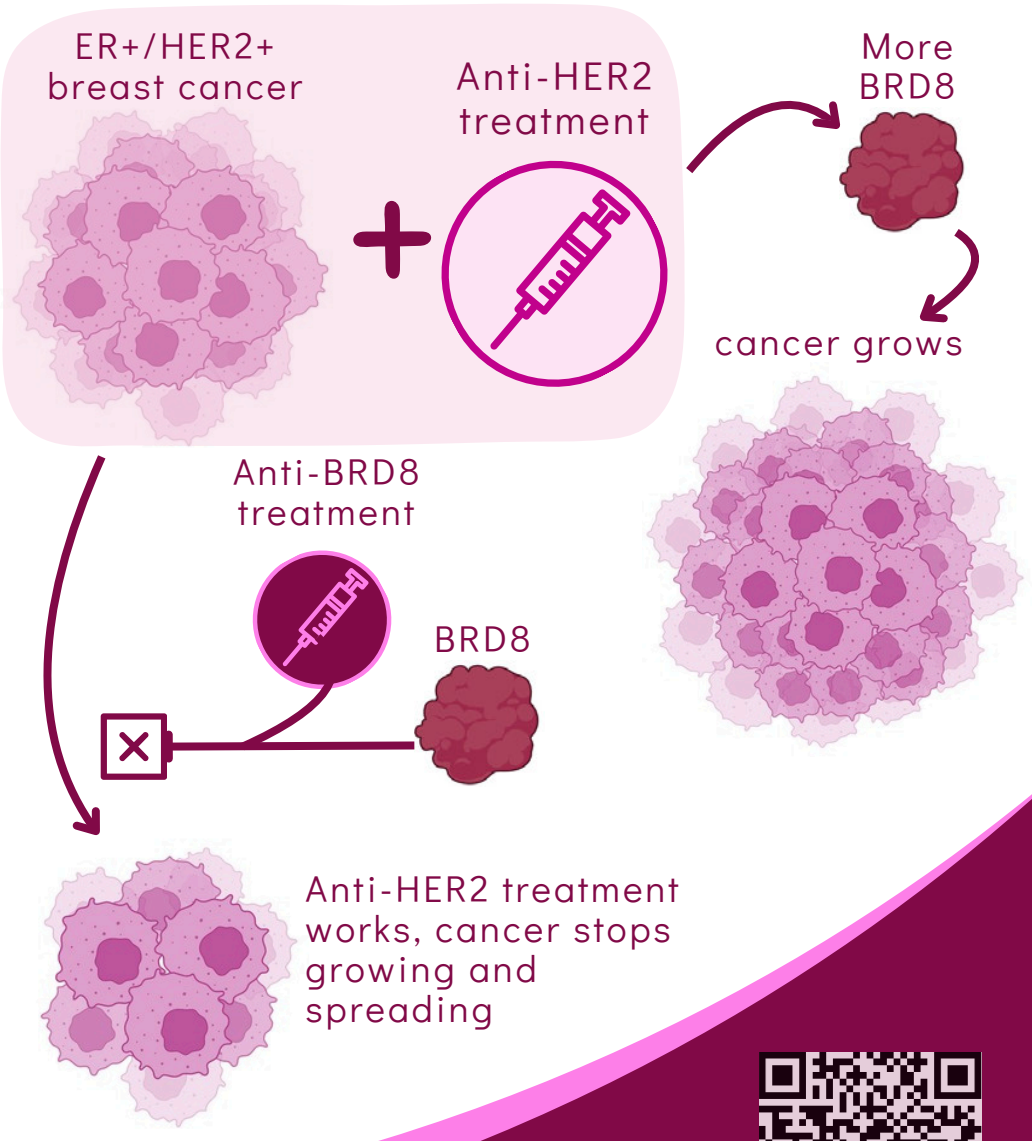
ER+/HER2+ breast cancer is very hard to treat

ER and HER2 are proteins that tell cancer cells to grow. They use connected paths inside cells to “talk” to each other. Even if a drug blocks one protein, the other protein keeps cancer growing.

Protein BRD8 makes cancer grow

Researchers found that protein BRD8 helps tell cancer cells to grow.

Anti-HER2 cancer treatments increase BRD8 in cancer cells, which tells cancer to grow again



Blocking BRD8 helps cancer treatments work better

In this study, researchers found that blocking BRD8 made cancer treatments work better.

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Ang Gao, Parth Khatri, Gui Ma, Peng Liu, Mark Burkard, Kari Wisinski, Charles Perou, Huy Dinh, Wei Xu. AACR 2025.

How a protein called CTR9 protects us from breast cancer

Researchers studied breast cancer tumors and cells from mice.

Mice with CTR9 that did not work normally had more tumors in their milk ducts and alveoli.

When CTR9 protein is not working...

CTR9

mammary luminal cells (stem cells) grow more

more milk duct cells

more alveoli cells

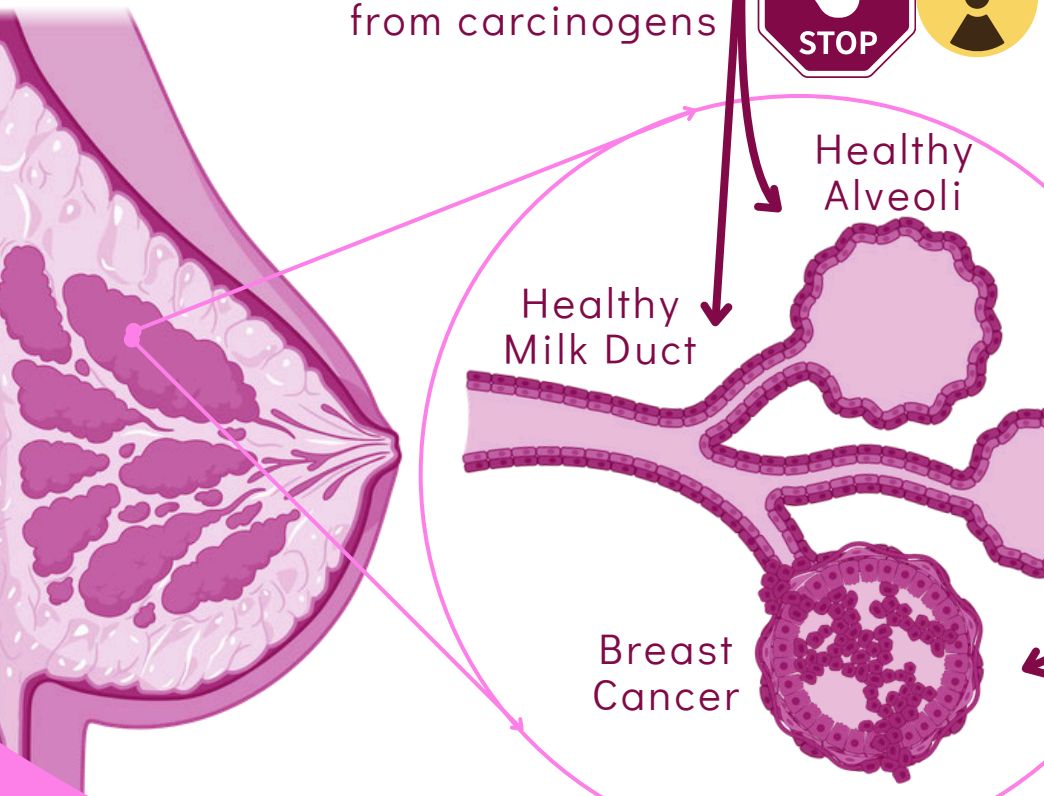
carcinogens can lead to cancer

When CTR9 protein is working...

CTR9

cells protected from carcinogens

STOP



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Gui Ma, Ang Gao, Mingshan Hu, Ngai Ting Chan, Yidan Wang, Wei Xu. AACR 2025.

How breast cancer grows: ZNF703 and CARM1

ER+ is the most common type of breast cancer

The estrogen receptor (ER) is a protein that attaches to the hormone estrogen and tells cancer cells to grow. ER+ breast cancer cells have more ER. In this study, researchers looked at how other proteins affect ER and cause breast cancer to grow.

Estrogen increases ZNF703 protien

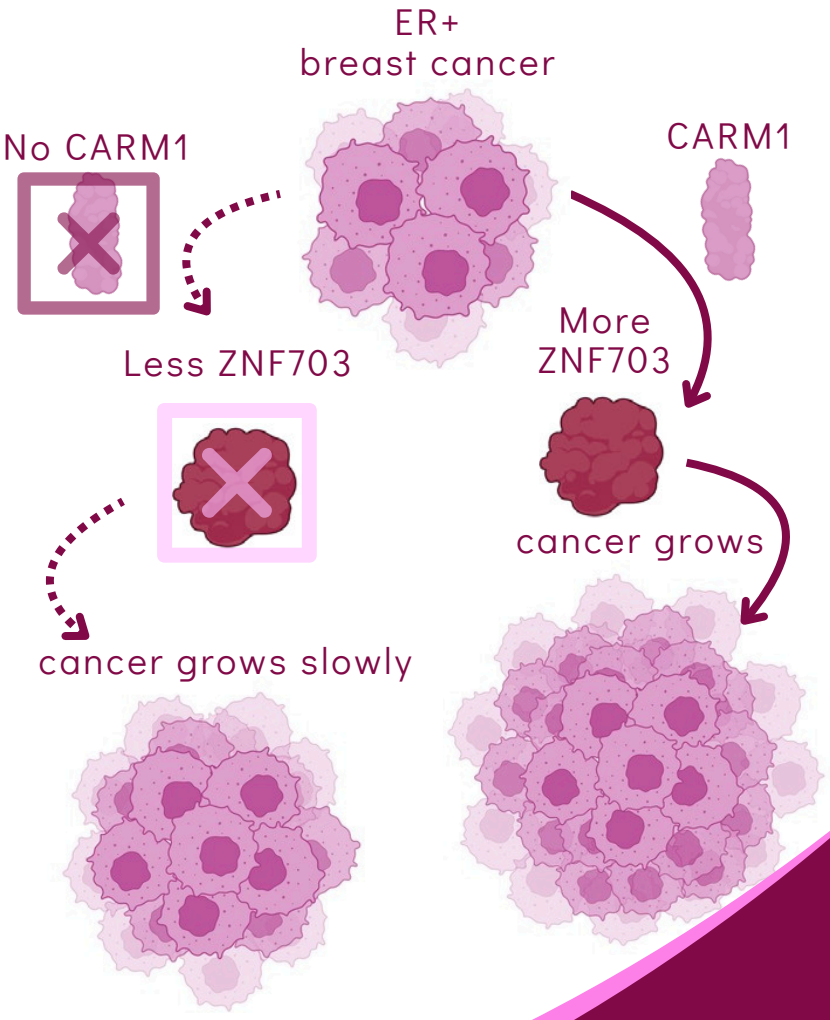
Researchers found that estrogen, a hormone, increases the amount of ZNF703 protein in cancer cells

Lowering ZNF703 slows cancer growth

When researchers lowered the amount of ZNF703 protein, cancer cells grew slower

Taking away CARM1 lowers ZNF703 and could be used to treat cancer

When researchers took away a protein called CARM1, ZNF703 broke down and cancer grew slower



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Jingjing Zhou, Eui-Jun Kim, Gui Ma, Ang Gao, Wei Xu. AACR 2025.

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Finding New Treatments for Breast Cancer

Triple-Negative Breast Cancer (TNBC)

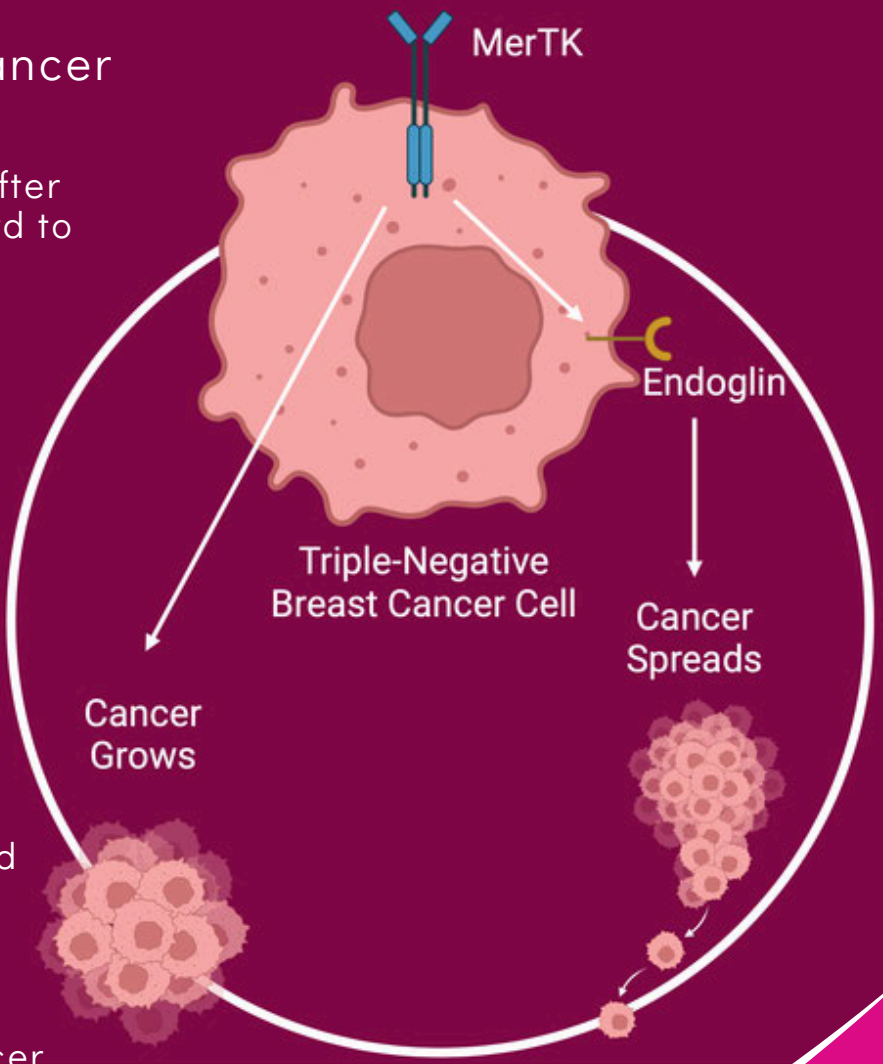
- Few people survive 5 years after TNBC diagnosis, and it is hard to treat
- TNBC cancer cells lack 3 different hormone receptors, which are normally used for cancer treatment

MerTK

- Protein on surface of cells
- Increases growth and spread of cancer

Finding New Treatments

- Scientists studied TNBC and MerTK in cells and mice to find new cancer treatments
- TNBC cells had a lot of MerTK
- Cancer cells with more MerTK grew faster
- MerTK may be spreading cancer in the body by affecting another protein called endoglin
- Future treatments could target MerTK and endoglin to stop TNBC cancer from growing and spreading



Research Article

Citation

Iida, M.; Crossman, B.E.; Kostecki, K.L.; Glitchev, C.E.; Kranjac, C.A.; Crow, M.T.; Adams, J.M.; Liu, P.; Ong, I.; Yang, D.T.; et al. MerTK Drives Proliferation and Metastatic Potential in Triple-Negative Breast Cancer. Int. J. Mol. Sci. 2024, 25, 5109.

Colorectal cancer and survival: why income helps, but not equally

We studied > 1,000 people with colorectal cancer to see what impacts survival. We found that...

Income Matters

People with incomes over $15,000 / year lived longer when diagnosed with colorectal cancer compared to those with lower incomes

Race Matters

The link between income and survival was smaller for Black participants

Factors related to race likely affect survival

Black participants who smoked were also less likely to survive compared to White participants

Access Matters

Earlier cancer screening, diagnosis, and treatment linked to survival

Higher income may mean earlier and better access to care

We need better access to screening and treatment for colorectal cancer - especially for low-income and Black communities

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Warren Andersen et al. Identifying clinical and lifestyle factors which mediate the association between socioeconomic status and colorectal cancer mortality. AACR 2025 Annual Meeting.

Where can we focus our fight against colorectal cancer?

Researchers combined information from many population studies on people who were screened for, had, or died with colorectal cancer.

Lower socioeconomic status areas
(low income, education, and job status)

Fewer people screened for colorectal cancer

More people had or died with colorectal cancer

This study tells us that we could focus resources for colorectal cancer screening and care in areas with lower socioeconomic status.

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LoConte et al. Poster presented at ASCO Quality Care Symposium, 2024.

Colorectal Cancer Screening among Black Americans

Colorectal Cancer

Access to stool test kits can increase screening.
We want to know Black populations' opinions and knowledge of this test.

What did we study?

We interviewed 79 Black individuals to ask about awareness, experience with, and opinions about home testing for colorectal cancer.

Black Americans shared that they:

Would use home tests to screen for colorectal cancer

Care about how **accurate and convenient** the test is

Older individuals **preferred to have a colonoscopy**

What's next?

Community health workers can **raise awareness** by sharing information about home stool kits.

Future research needs to ask different populations about their preferences for screening.

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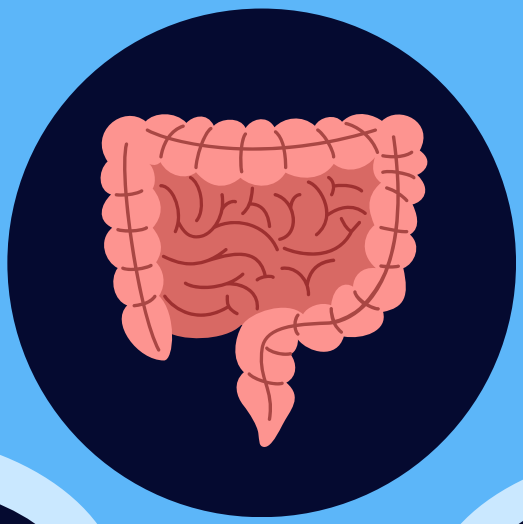
Research Abstract

Keiser et al. JCO 2024.

How Bile Acids Impact Colorectal Cancer

Bile acids help the colon absorb and move nutrients



>100,000 people each year get colorectal cancer

3rd leading cause of cancer deaths

Bile Acid
7 - OXO - DCA

Scientists studied how these bile acids impacted cancer in cells and in mice

Bile Acid
3 - OXO - LCA

More tumors and an environment that can lead to cancer in the gut

Less growth of cancer cells, better gut function, fewer tumors

May be related to colorectal cancer

May be useful in treatment of colorectal cancer

More research by this team:

This research helps us understand how colorectal cancer happens and how to better treat it.

Research on 3-OXO-LCA:

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F. Sun, X. Dong, M. Qi, T. Fu. AACR 2024.

Dong, Xingchen; Sun, Fei; Fu, Ting. DDW 2023.

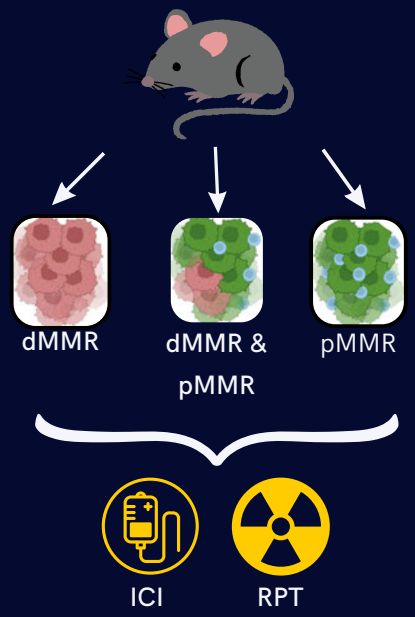
Testing Colorectal Cancer Treatments in Mice

RESEARCH ABSTRACT

WHY DO WE USE MICE TO STUDY CANCER?

Before testing cancer treatments in humans, scientists test how well they work in other animals. Mice are often used for testing because we can change their DNA, see cancers in them, and test treatments quickly. However, mice do not naturally grow all the same cancers as humans. For this study, the scientists changed mice DNA so they would grow colorectal cancers that are seen in humans.

WHAT DID WE STUDY?



Human colorectal cancer often has dMMR and pMMR cells. dMMR cells lack a DNA repair protein, while pMMR cells have the repair protein. These two types of cancer cells may need different treatments.

To study colorectal cancer treatments, scientists changed mice DNA so they would grow cancers that have dMMR, pMMR, and a mix of the two cell types.

The scientists gave these mice cancer treatments called immune checkpoint inhibition (ICI) therapy and radiopharmaceutical therapy (RPT) to see how well they worked against dMMR and pMMR cancer cells.

WHAT DID WE LEARN?

dMMR colorectal cancer cells may be best treated by RPT followed by ICI.
pMMR colorectal cancer cells are not well treated by ICI but can be treated with RPT.

WHAT'S NEXT?

ICI and RPT treatments may be tested in clinical trials in humans with dMMR colorectal cancer cells.

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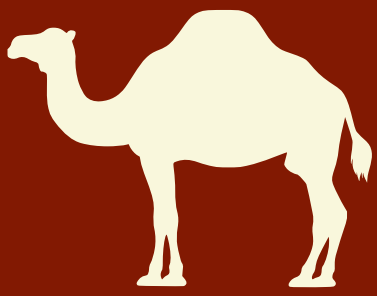
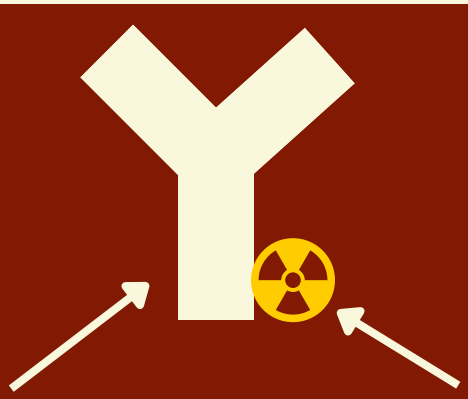
Santina M. Snow, Dawn Albrecht, Paul A. Clark, Caroline P. Kerr, Joseph J. Grudzinski, Justin J. Jeffery, Hansel Comas Rojas6, Reinier Hernandez6, Kristina A. Matkowskyj, Jamey P. Weichert, Zachary S. Morris, Richard B. Halberg. AACR 2024.

Camels, Cancers, Clues

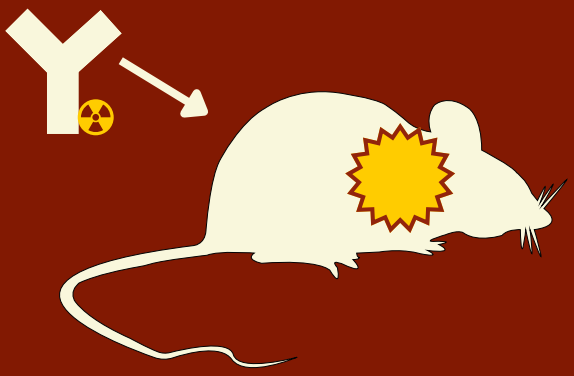


In head and neck cancer, a protein called MET drives cancer growth and spread
Researchers tried to see MET to give us clues to better find and treat cancer

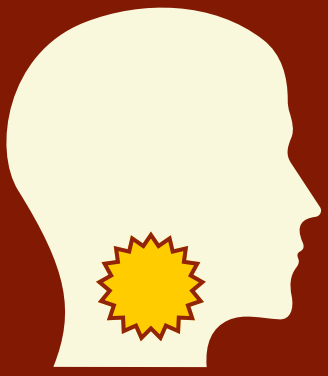


Researchers used a camelid antibody, naturally found in camels, binds to MET

Radioactive molecule, lets us see the camelid antibody and MET in PET scans



In mice, the camelid antibody binds to MET in head and neck tumors and lights up in a PET scan



Next, researchers will test the camelid antibody in humans to see if it is safe and can find cancers that have MET protein

Minne, et al. Mol Pharm. 2024 Dec 2;21(12):6376–84.

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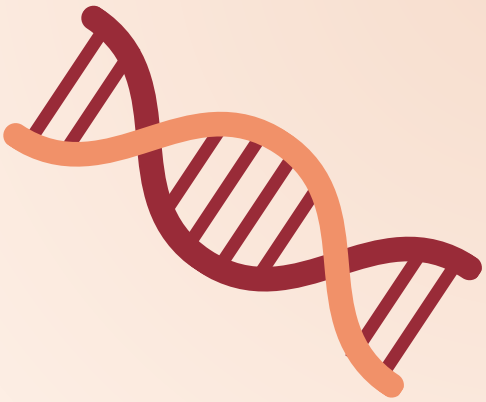
How can we better treat lung cancer?

Our DNA has a gene called MET that helps cells stay healthy and grow normally. When MET is mutated, cancer can grow and spread.



Scientists found that lung cancer tumors with different MET gene mutations may need different cancer treatments.

Future studies can look at what cancer treatments may work best for lung cancers with different MET mutations. This research helps us know how to better treat lung cancer.

Poster abstract from Javeri et al. AACR 2024:

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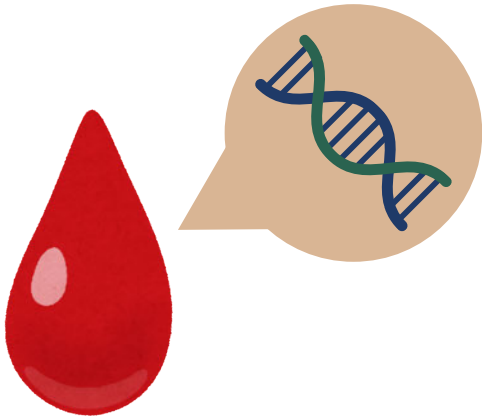
KIMPLE LAB
PRECISION CURATIVE MEDICINE

How blood tests can help us treat skin cancer

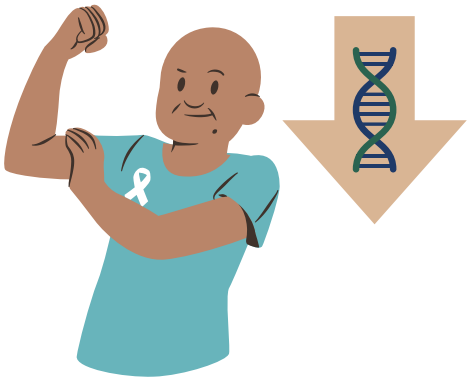
the goal



When someone has skin cancer, circulating tumor DNA (ctDNA) can be found in the blood

Testing blood for ctDNA may tell us whether cancer treatments are working

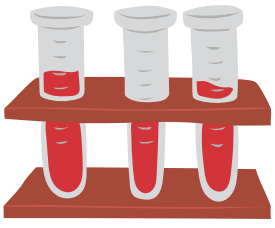
the findings



Patients with better cancer outcomes had lower ctDNA levels as early as 3-4 weeks after immunotherapy (cancer treatment)

Next, we need studies with more patients to see if this ctDNA blood test can help us find the best treatment strategy for cancer patients

the study



We tested ctDNA levels in blood from 46 advanced skin cancer patients before and after cancer treatment

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Vincent Ma, Yeonhee Park, Janmesh Patel, Madison Harris, Matthew Mannino, Jennifer Schehr, Alexander Birbrair, Shuang Zhao, Joshua Lang. ASCO 2024.

Research on Skin Cancer

How do we treat skin cancer?

One type of skin cancer treatment is immune checkpoint blockade (ICB) therapy. This therapy helps the body's immune system to kill cancer cells.

ICB does not work well for most skin cancers.

Why does ICB not work on all skin cancers?

Skin cancer cells have a lot of the protein called MZB1. In this study, the scientists found that MZB1 in skin cancer cells affects immune responses, which makes it hard for ICB therapy to work.

What's next?

Future studies can look at how to target MZB1 so that ICB therapy can better treat melanoma.

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G. Chhabra, C. A. Shirley, J. M. Krien, M. A. Ndiaye, N. Ahmad. A potential oncogenic role and immunoregulatory mechanisms of MZB1 in melanoma. AACR 2024.

Research on Skin Cancer

What did we study?

Melanoma (skin cancer) cells have 10 types of frizzled proteins (FZD). We wanted to see how one of the proteins, FZD7, affects cancer. We studied FZD in cells in a lab and in mice.

What did we find?

Melanoma cells have a lot of FZD7 protein. FZD7 proteins may be increasing growth and spread of melanoma cancer.

What's next?

We will study how FZD7 proteins make melanoma grow and spread in the body.

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M. Nihal, S. A. Umar, A.-B. A. Chang, N. Ahmad, H. Chang. Role of Frizzled 7 in melanoma development and metastasis. AACR 2024.

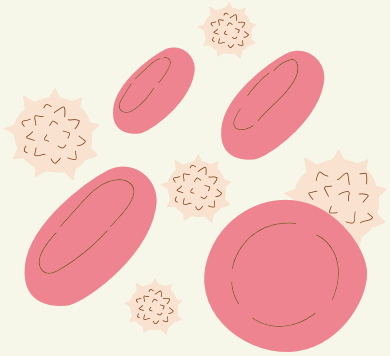
New Drug Combo to Treat Acute Myeloid Leukemia

WHY IS ACUTE MYELOID LEUKEMIA (AML) HARD TO TREAT?

This type of blood cancer is caused by different DNA mutations (changes). One mutation called NRAS causes fast growth and spread of cancer, and current treatment does not work well against it.

WHAT DID WE FIND?

Researchers found that two drugs called quisinostat and trametinib used together helped mice with AML live much longer by activating (boosting) their immune systems. More studies are needed to see how to treat humans using these drugs.



WHAT DID WE STUDY?

Researchers tested 2,500 drugs in AML cancer cells and mice to see what treatment could work for humans.

Meher Gayatri Bolisetti, Jing Li, Bei Jia, Esra'a Keewan, Erik A. Ranheim, Kalyan V.G Nadiminti, Hong Zheng, Xiaona You, Jing Zhang. AACR 2025 Annual Meeting.

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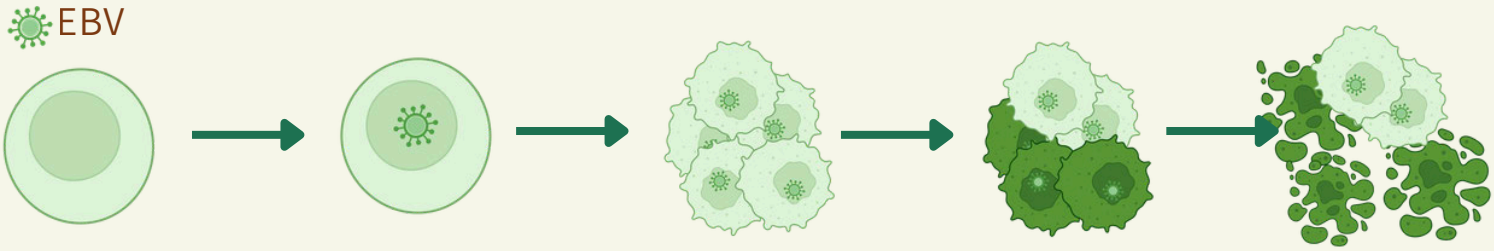
Using Epstein-Barr Virus to Treat Lymphoma

Epstein-Barr Virus (EBV) is very common, and usually is latent (not active) and does not harm us. Sometimes, though, EBV is linked to cancer such as lymphoma.

Researchers want to know if we can activate EBV to lyse (destroy) cancer cells. This is called “lytic induction therapy”.



Healthy B-Cell, part of lymphatic immune system

EBV infects B-cell

Cancer of B-cell, lymphoma

Lytic induction therapy activates EBV in cancer cells

Cancer cells lyse (die) and cancer shrinks

Researchers found that lytic induction therapy activates EBV and two proteins called Rta and Zta help lyse the cancer cell.

Future lymphoma cancer treatments can use both Rta and Zta to improve lytic induction therapy.

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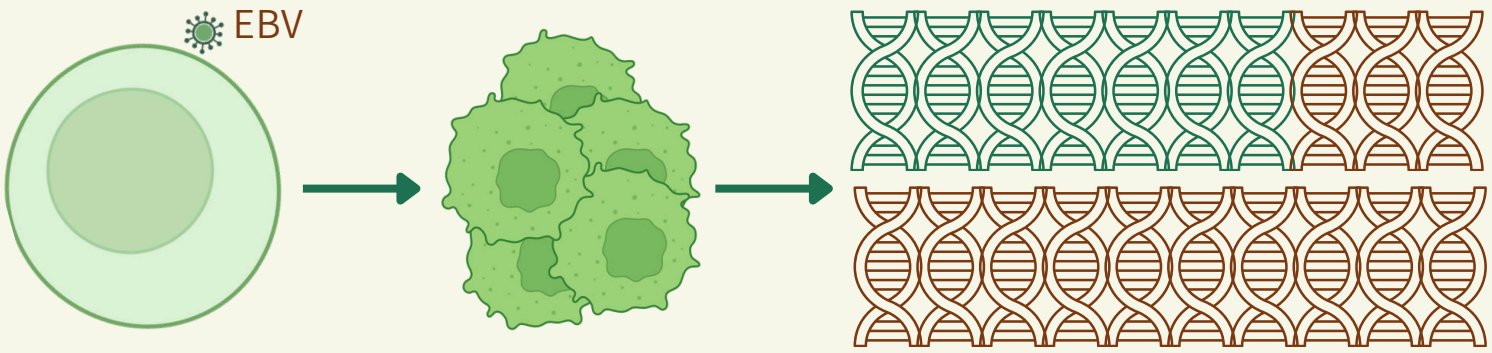
Emilie Greene, Eric Johannsen, Ahmed Ali. AACR 2025 Annual Conference.

Epstein-Barr Virus and Lymphoma

Diffuse large B-cell lymphoma (DLBCL) is the most common type of aggressive lymphoma, a cancer of the immune system.

Different genetic types of DLBCL can be treated differently.

Epstein-Barr Virus (EBV) is very common, and usually does not harm us. However, in rare cases it can lead to cancer. Researchers want to know how EBV affects DLBCL is typed and treated.



Healthy B-Cell

EBV changes B-cell and leads to cancer, such as DLBCL

⅔ of the 20 different DLBCL gene types found in this study did not match current genetic definitions

Epstein-Barr Virus infection can change genetic type of DLBCL.

To better understand and treat DLBCL,
we should consider Epstein-Barr Virus infection.

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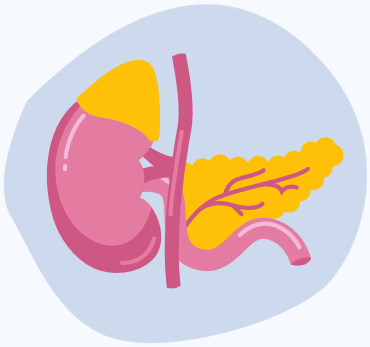
Quincy Rosemarie, Mitch Hayes, Eric C. Johannsen. AACR 2025 Annual Conference.

Treating Pancreatic Cancer

What Did We Study?



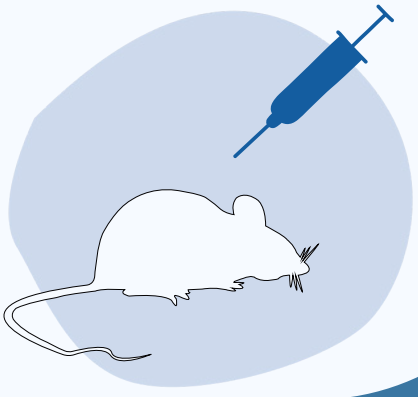
- **Many people die from pancreatic cancer**
- **Cancer in the pancreas is hard to treat**
- **We tested two treatments in cells, first on their own, then together**

What Did We Learn?

- On their own, the treatments did not work well
- Together, the treatments worked well against cancer

What's Next?

- Test both treatments together in animals
- See if they are safe for humans to use next



Scan For More Info

L. J. Koeppel, A. Stram, R. J. Millikin, E. Riedl, M. Hossan, E. Lin, R. Stewart, J. D. Kratz. AACR Meeting 2024.

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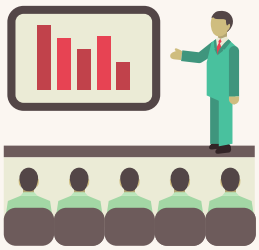
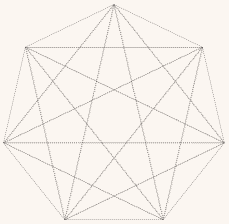
Request a Lay Abstract!

We make lay abstracts in many written and visual formats that you can use for...

Community education



Research presentations



Social media sharing

Lay summaries for grants, papers, and reports

Collaboration

Scan to request a lay abstract of cancer research

Philanthropy

Teaching

Carbone Cancer Center
UNIVERSITY OF WISCONSIN
SCHOOL OF MEDICINE AND PUBLIC HEALTH

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