

A wide-angle photograph of the Salk Institute's iconic concrete building complex. The building features a series of interconnected, angular concrete volumes with a grid-like pattern of small circular holes. A long, straight concrete walkway leads from the foreground towards the center of the courtyard, where a few small figures of people can be seen. The sun is positioned directly in the center of the frame, creating a bright starburst effect and casting long, dramatic shadows across the courtyard and the building's facade. The sky is a deep blue with wispy white clouds. In the foreground, the edge of a concrete platform is visible, with water cascading over it, creating a sense of movement and depth.

REUBEN SHAW

PROFESSOR, DIRECTOR OF SALK INSTITUTE CANCER CENTER

salk®

SALK INSTITUTE FOR BIOLOGICAL STUDIES

Reuben Shaw, PhD

Professor, Molecular and Cell Biology Laboratory Director, Salk Cancer Center

Discovered the **AMPK pathway**, which connects the benefits of diet, exercise, and metformin to the suppression of cancer and diabetes.

Select Awards

- Mark Foundation Endeavor Award, 2022
- NCI Outstanding Investigator Award, 2017
- HHMI Early Career Scientist, 2009
- American Cancer Society Scholar, 2007

Education

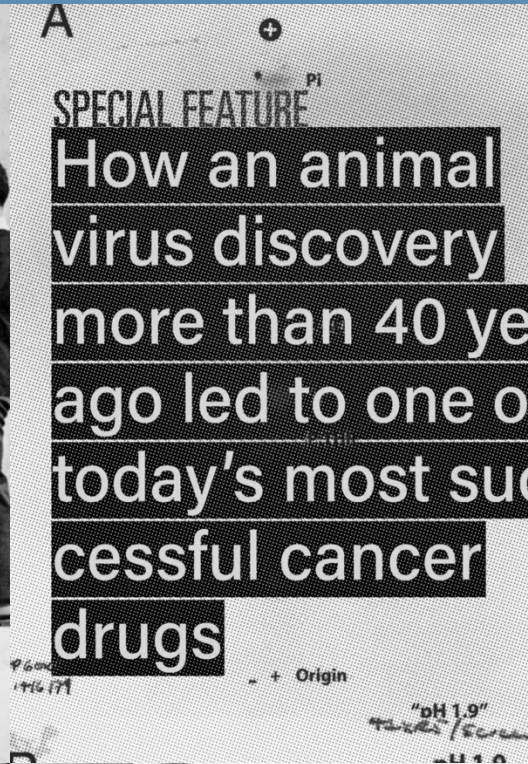
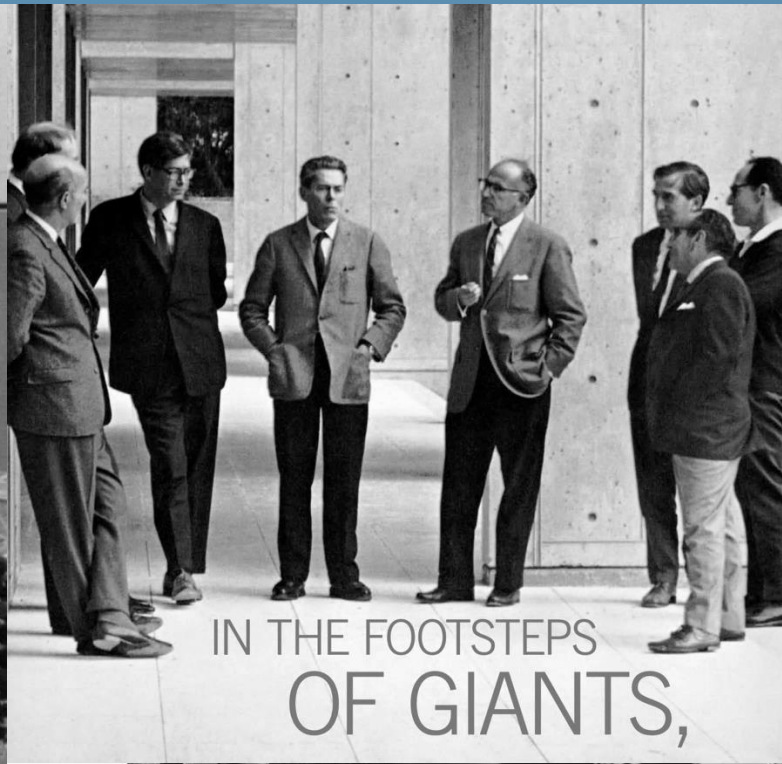
- Postdoctoral Fellow, Harvard Medical School
- PhD, MIT Cancer Center
- BS, Cornell University



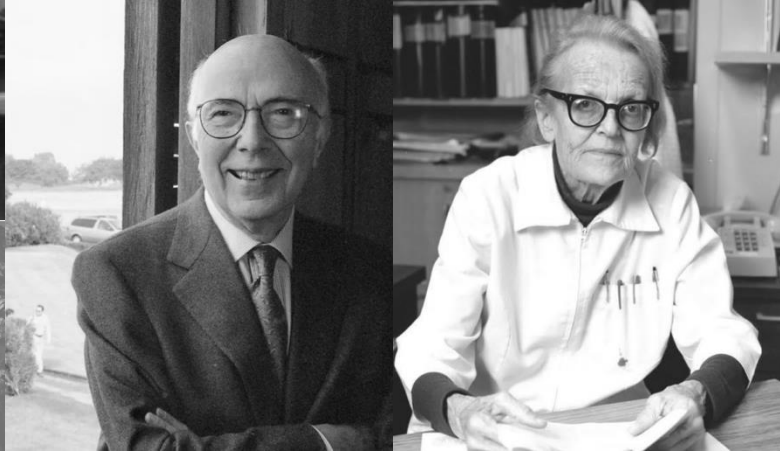
THE
SALK
INSTITUTE
PRESENTS

Scientific Excellence, Past and Present

salk®



1950s
Dulbecco and Vogt
discover the cause of
cancer in the form of
rogue DNA.



50 Years Later, 50 World-Renowned Scientists

salk[®]



Tony Hunter
NAS, NAM, AAAS
2022 AACR Lifetime Achievement



Ronald Evans
NAS, NAM, AAAS
2022 AACR Clowes Award
2024 Japan Prize



Reuben Shaw
2009 HHMI
Early Career
2017 NCI OIA



Susan Kaech
NAS, AAAS
2009 HHMI
Early Career



Dannielle Engle
2021 Mark Foundation
2021 Lustgarten-AACR
Ruth Bader Ginsberg



Daniel Hollern
2021 METAvivor
Early Career
2022 Komen Career



Rusty Gage
NAS, NAM, AAAS
2024 Taylor International Prize



Gerald Joyce
NAS, NAM, AAAS
2019 Royal Swedish Academy



Janelle Ayres
HHMI
2018 NIH Pioneer Award



Alan Saghatelian
2020 AAAS Fellow
2022 Cancer Research Endeavor Award



Christina Towers
2023 Chan-Zuckerberg
2023 Pew-Stewart
2023 V Scholar



Jesse Dixon
2016 NIH Early Independence
2024 Pew Scholar



Joseph Ecker
NAS, AAAS, HHMI
2024 Ilchun Molecular Medicine Award



Geoffrey Wahl
AAAS
2015 NCI OIA
2022 Komen Brinker



Christian Metallo
2020 Dreyfus Teacher-Scholar
2021 AIMBE Fellow



Diana Hargreaves
2016 V Scholar
2019 Pew-Stewart
2020 ACS Scholar



Dmitry Lyumkis
2015 NIH Early Independence
2020 NSF Early Career



Deepshika Ramanan
2020 STAT Wunderkind
2021 Damon-Runyan Dale Frey Breakthrough

A New Generation of Change-Makers

salk®



Dannielle Engle
Asst Professor
Jan 2019

**Cold Spring
Harbor**

Pancreatic
cancer and
organoids



Daniel Hollern
Asst Professor
Jan 2021

UNC Chapel Hill

Breast cancer
immuno-
therapy



Pallav Kosuri
Asst Professor
Jan 2021

Harvard

DNA origami,
topography and
transcriptomics



Christina Towers
Asst Professor
Jun 2021

U Colorado

Autophagy;
optogenetics
CRISPR
screens



Christian Metallo
Professor
Jul 2021

UCSD

Diet and
metabolic flux
in cancer



Talmo Pereira
Salk Fellow
Dec 2021

Princeton

Machine
learning,
AI tools



Shika Ramanan
Asst Professor
Mar 2023

Harvard

Breast milk
immunology;
microbiome



Aga Kendrick
Asst Professor
Sept 2023

UCSD

Time-resolved
Cryo-EM;
Cancer



Adam Bowman
Salk Fellow
Nov 2023

Stanford

Time-domain
imaging in cell
signaling

Salk's Cancer Center



Established in 1970, we are the **longest continuously running NCI-Designated Cancer Center** in California.

An **engine of foundational discoveries** essential for advancing clinical treatment.

Our **unique design** enables collaboration, innovation, evolution, and nimbleness.

We develop **custom and cutting-edge technologies** you can't find elsewhere.



Salk's Cancer Center



Salk is taking a **holistic approach** to conquering cancer.

We don't work in siloes—

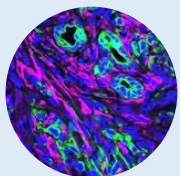
We collaborate and combine expertise to investigate the unexplored spaces between fields, ***where the real innovation happens.***

We don't just study tumors—

We study their **environment**,
the **immune system**,
the role of **metabolism**,
the **microbiome**,
and how each person's **genetics** and **lifestyle** influence their risk and treatment response.



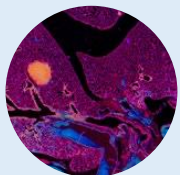
Taking on the “Big Six” Deadliest Cancers



PANCREATIC CANCER

Approximately 12% of pancreatic patients survive more than five years. Part of the problem is late diagnosis. Pancreatic cancer presents indistinct symptoms, such as abdominal pain, jaundice, and weight loss. But the biggest issue is that pancreatic tumors build

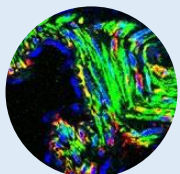
a shell to protect themselves. Similar to scar tissue, this shell thwarts the immune system, and unfortunately also prevents chemotherapy and other treatments from accessing the tumor. Salk scientists have been attacking pancreatic cancer from different angles, including new therapies in clinical trials that break the tumor's shell to allow for much more effective treatments across the board.



LUNG CANCER

Lung cancer is the #1 cause of all cancer deaths in the US annually, killing more patients than breast, prostate, and colon cancer combined. Its overall 5-year survival rate is less than 20%. On the plus side, lung cancer stands as a testament to the power

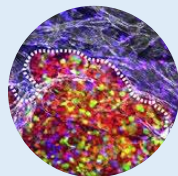
of research in driving the development of new powerful therapies, as around 25% of lung cancer patients can now be treated with personalized therapies against the specific genes mutated in their cancers. Salk scientists are contributing to the development of these novel approaches to fighting lung cancer.



OVARIAN CANCER

Like pancreatic cancer, ovarian cancer is often diagnosed late. Early-stage ovarian cancer clinically looks a lot like irritable bowel syndrome. By the time many patients are diagnosed, the cancer has usually already spread. The 5 year survival rate is less than

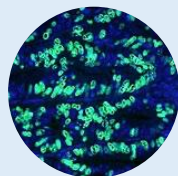
50%, but Salk scientists are working on new therapeutic targets for specific subsets of ovarian cancer patients.



TRIPLE-NEGATIVE BREAST CANCER

While many forms of breast cancer are quite treatable, triple-negative breast cancer remains a huge challenge. These tumor cells lack estrogen, progesterone, and HER2 receptors, which are often targeted in standard breast cancer therapies. Without

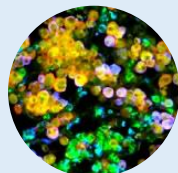
these targets, patients have fewer therapeutic options. In addition to being more difficult to treat, triple-negative breast cancer can be more aggressive, rapidly spreading to other tissues. Salk scientists are developing new therapies based on distinct aspects of how breast cancer cells engage with the immune system.



COLORECTAL CANCER

Like lung cancer, colorectal cancer is a very common cause of cancer deaths per year, and the incidence of colorectal cancer in young adults has been on the rise in the last decade for unknown reasons. Late diagnoses are giving colorectal cancer a reputation as

“the silent killer.” Colon and rectal cancers have been associated with diabetes, inflammatory bowel diseases, alcohol consumption, and the typical Western diet. Salk scientists are studying multiple aspects of colorectal cancer to inform new treatment plans.



GLIOBLASTOMA

The deadly brain cancer glioblastoma has an abysmal 5-year survival rate of less than 10%. Brain surgery for glioblastoma multiforme has been likened to lifting a spider web off wet leaves—small pieces stay behind. New metabolism-based

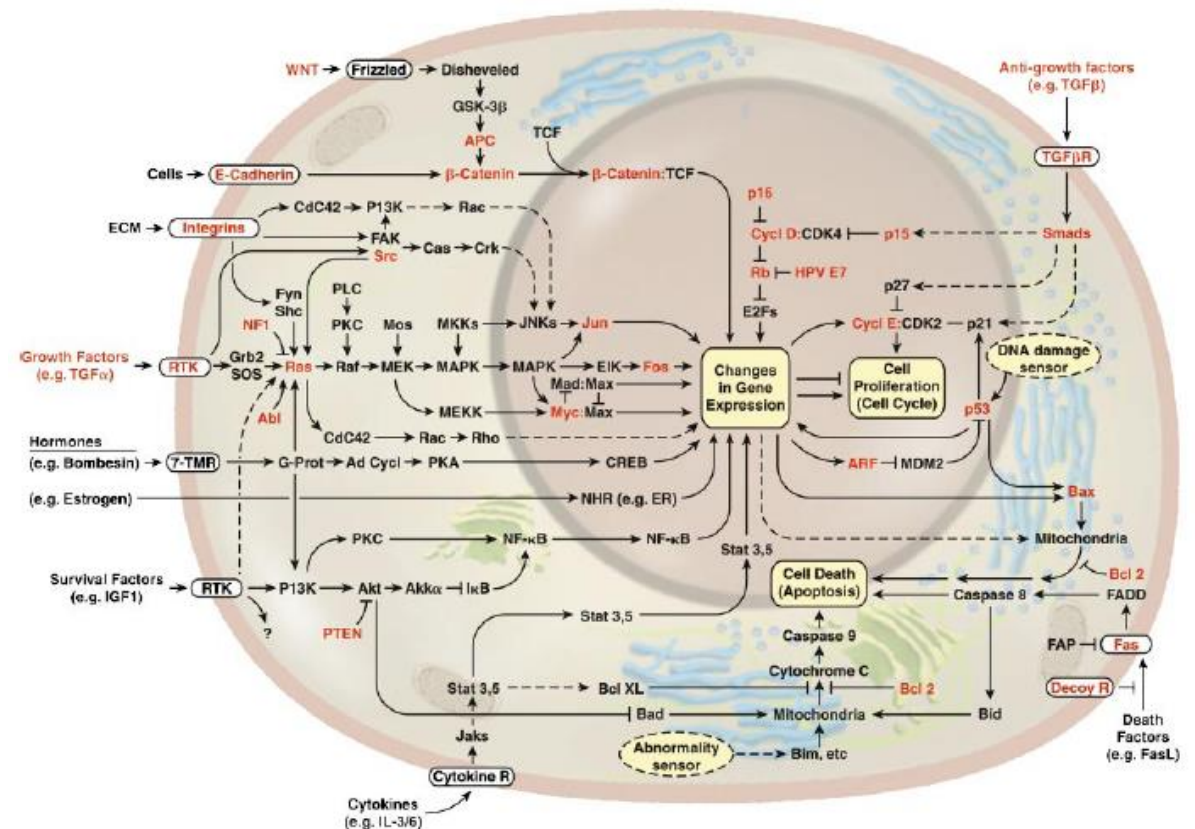
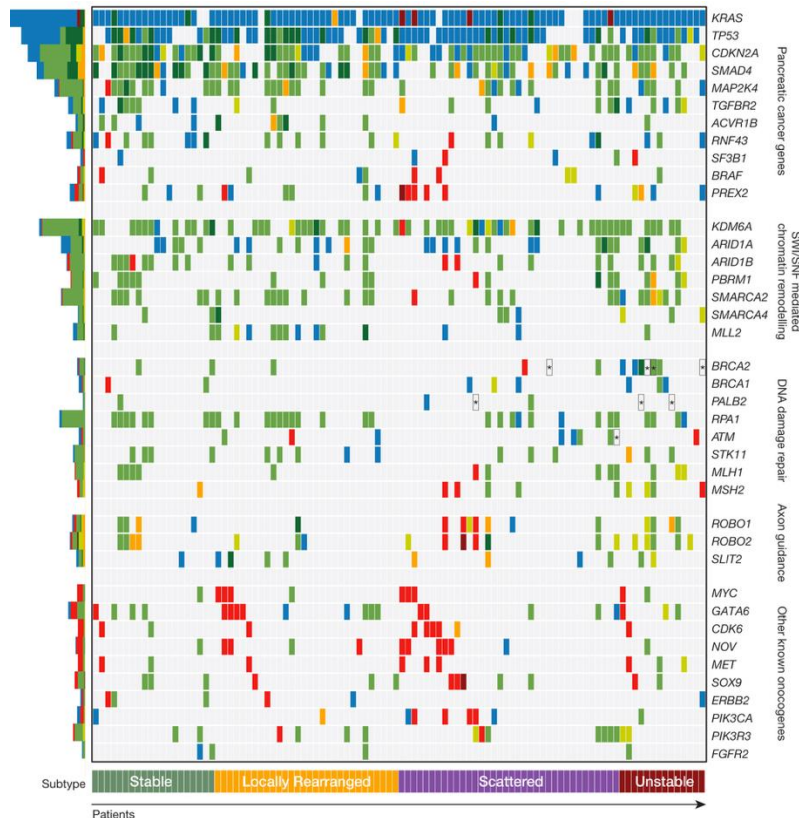
therapeutics have been shown to help some patients with specific genetic mutations, an approach Salk scientists hope to expand and combine with new immunotherapies.



Enabling Personalized Medicine

With new DNA sequencing technology, cancer researchers have identified **hundreds of gene mutations** that can drive tumor formation.

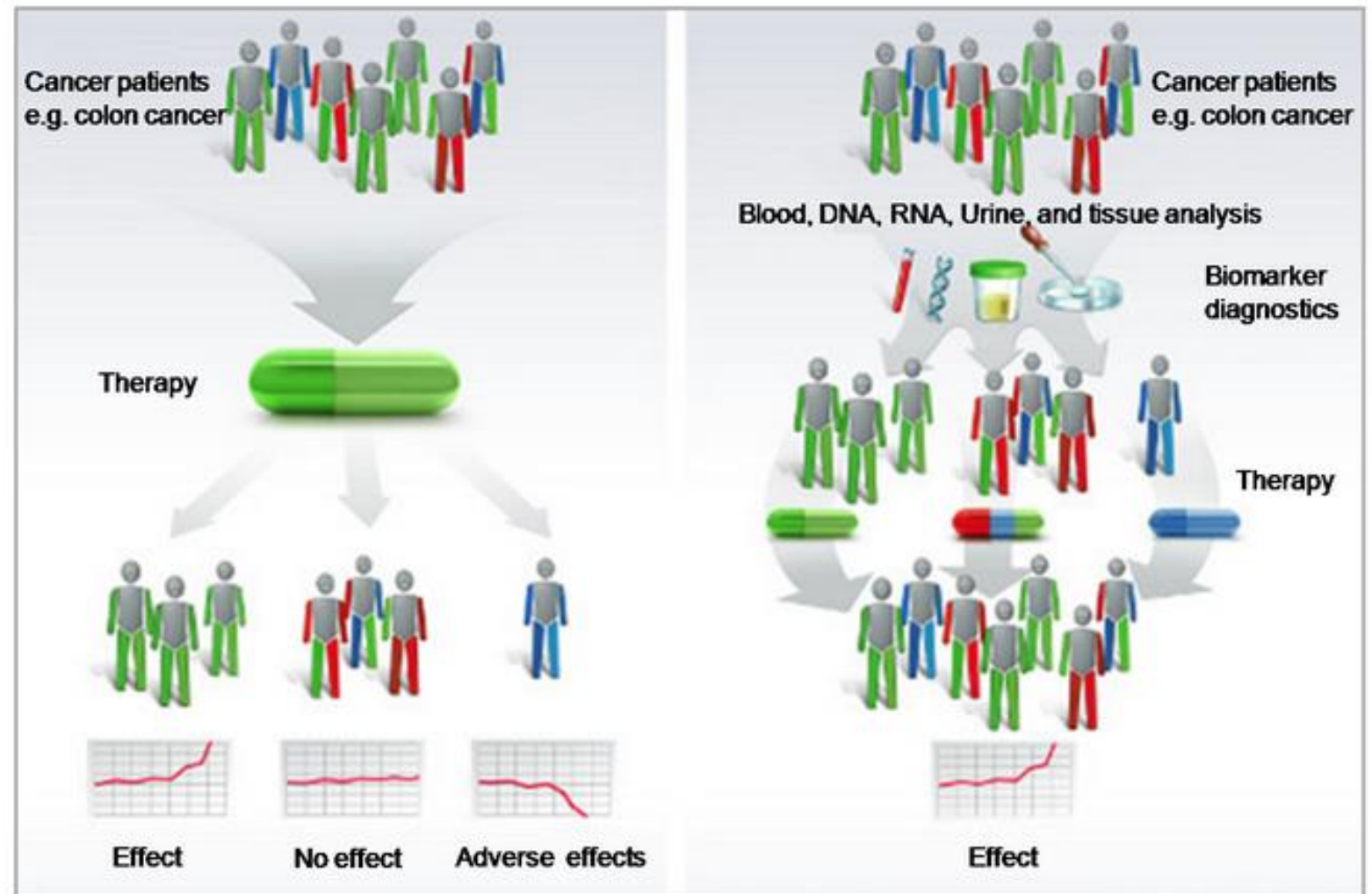
These genes represent a **complex web of molecular signaling pathways** that each contribute to tumor formation in different ways.



Enabling Personalized Medicine

In the future, we will have an **arsenal of drugs** to block every signaling pathway activated during tumor formation.

Patients will take a unique combination of drugs that block the specific pathways altered in **THEIR tumor**.



The future of cancer treatment:

Combinations of drugs that target distinct drivers of cancer.

Targeted therapies

CRISPR gene editing

Metabolic therapies

Immunotherapies

Oncolytic viruses

Chemotherapy



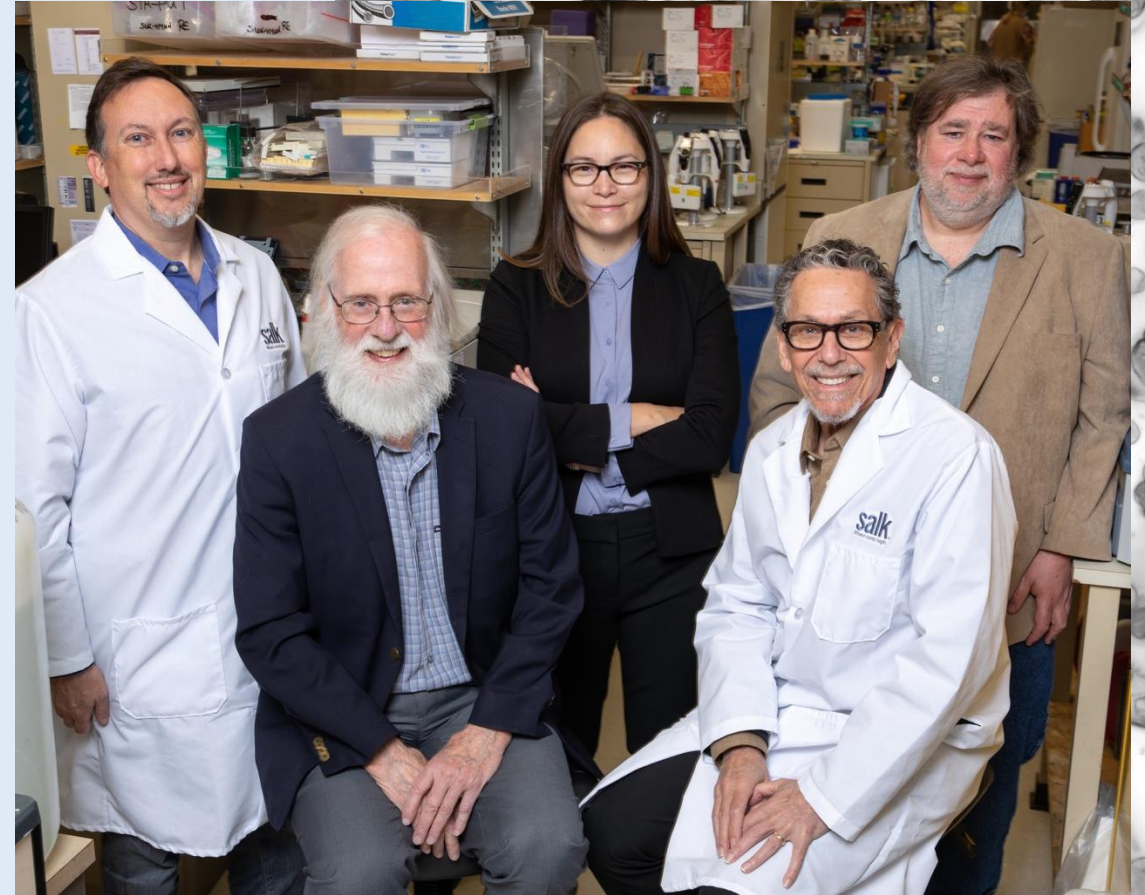
Patient-Derived Organoids to Treat Pancreatic Cancer



Pancreatic cancer: Highest mortality rate, projected to be #2 cause of cancer-related deaths in the US by 2030.

Especially **difficult to treat**. Pancreatic tumors grow quickly and are constantly evolving, making them **prone to drug resistance**.

Patient-derived organoids offer a reliable predictive model for clinicians, who can test a tumor's response to a variety of drugs and choose a **personalized treatment plan** most likely to succeed in that patient.



A Space Designed for History-Making Science



Salk science is shaped by its unique setting.

Jonas Salk dreamed of creating a place where scientists could come together to explore the basic principles of life and use their discoveries to benefit the world for generations to come.

Salk teamed up with Louis Kahn to build one of the **world's most renowned architectural sites.**

The Salk Institute is meticulously designed to facilitate **collaboration, innovation, and evolution.**



A Space Designed for History-Making Science



- **Honors both science and art** to inspire creativity.
- **Combines natural and man-made materials**, blending monumental structures with domestic spaces to highlight Salk's philosophy of **humanized science**.
- **Faculty studies** provide space for focused contemplation.
- **One center courtyard** facilitates community interaction.
- **No walls** between labs to help scientists share ideas.
- **Core tech facilities** support resource-sharing.
- **Flexible infrastructure** promotes lab evolution.

Building the Future of Salk

- **Attract world-class faculty through endowed chairs.**
- **Fund postdoctoral fellowships**, essential team members who drive innovation.
- **Provide funding for collaborative projects**, the type of research that is too complex for individual labs to carry out.
- **Support lab infrastructure**, including our core facilities and support staff.
- **Develop new tools and technologies**, including in AI, high-resolution imaging, disease modeling, genome mapping and manipulation, and metabolism tracing.
- **Collaborate with industry partners** to advance and translate our findings.

