MASSIVEBIO

PRECISION CANCER CONSORTIUM

TEAMS UP WITH MASSIVE BIO

Roche | AstraZeneca | BAYER | GSK

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MASSIVE BIO LAUNCHES REVOLUTIONARY CHATGPT POWERED CHATBOT PLATFORM IN ASCO 2023

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A MESSAGE FROM SELIN

As we embrace the growth and renewal of 2023, Massive Bio is actively innovating in oncology and personalized cancer care. This transformative journey began with our launch of the GPT4 AI chatbots - Ask-Fiona AI and DrArturo AI, at ASCO 2023. These chatbots are revolutionizing clinical trials, enhancing patient engagement, and making it easier for patients and caregivers to understand their treatment options.

In collaboration with the Precision Cancer Consortium, a group of biopharmaceutical leaders, Massive Bio is propelling the use of data-driven precision oncology. Our AI analytics tools are helping to increase patient access to targeted interventions and to improve clinical trial matching.

Our partnership with The Oncology Institute (TOI) is bridging the gap between patients and advanced cancer therapies. Built on AI technology, this alliance is bringing innovative treatments and clinical trials closer to patients.

Massive Bio is proud to be a founding member of CancerX, an initiative endorsed by The White House. This partnership is leveraging technology to accelerate innovation in cancer care and to democratize access to treatments.

As the season changes, we are reminded of the power of innovation and the progress it brings. We invite you to review our activities at ASCO 2023 to see first hand our progress in personalized oncology solutions.

With good health and optimism,

Selin Kurnaz

PhD, Co-founder and CEO

Precision Cancer Consortium
Teams with **Massive Bio** to Improve Clinical Trial Matching

Massive Bio, a leading artificial intelligence (AI) analytics company specializing in precision oncology, has been selected by the Precision Cancer Consortium (PCC), a collaboration of several global biopharmaceutical companies, to optimize clinical trial matching through their innovative AI analytics tools.

PCC was established in 2022 with a shared vision of enabling access to comprehensive testing for all cancer patients globally, and is currently comprised of Roche/Genentech, Novartis, GSK, Bayer, Eli Lilly & Company, Johnson & Johnson/Janssen and AstraZeneca. The partnership will incorporate PCC member clinical trial protocols and patient inclusion and exclusion criteria into existing machine learning matching algorithms in SYNERGY-AI leveraged within Massive Bio's Deep Learning Clinical Trial Matching System (DLCTMS). This will optimize the quality and efficiency of matching patients to trials across sponsor programs and improve patient access to targeted Next Generation Sequencing (NGS) testing and tailored interventions.

Selin Kurnaz PhD, Founder and CEO of Massive Bio, commented, "We are thrilled to be working with the Precision Cancer Consortium to advance precision oncology through our innovative AI analytics tools. With this partnership, we can streamline the process of clinical trial matching and reduce the bur-

den on patients and healthcare systems."

The PCC is a collaborative initiative to make data-driven precision oncology the new normal for all cancer patients globally, focusing on increasing patient access to targeted NGS testing and tailored interventions. The program sponsored by PCC will generate combined data and insights to optimize the allocation of patients to available ("local") clinical trials based on NGS testing or Comprehensive Genomic Profiling, clinical and patient characteristics, and relevant trial eligibility criteria.

Dr. Arturo Loaiza-Bonilla, Co-Founder and Chief Medical Officer of Massive Bio, said, "We are proud to partner with the Precision Cancer Consortium and bring our AI analytics tools to the forefront of precision oncology. Our technology utilizes genomics and clinical data from various platforms to present available intervention options for each patient in order to optimize clinical trial matching by reducing inefficiencies and multiple screenings. Together, we can help

Precision Cancer Consortium Members

more patients access the right treatment options and improve outcomes."

Through this partnership, Massive Bio will design and pilot a trial matching tool for prospectively matching patients through genomic testing and clinical data to a set of selected ongoing biomarker-driven clinical trials within previously defined locations (i.e. site, Health Care Organization, country). The companies will also explore considerations for larger scale or real-world application for further development.

Yinghui Zhou PhD, PCC Project Lead and Sr. Director, Bayer Translational Sciences Oncology, added, "This collaboration has the potential to address a major challenge in precision oncology and improve patient outcomes. By working together and utilizing a collection of genomics data from multiple sources centralized with the assistance of AI, we can create a valuable scientific resource and optimize the efficiency of clinical trial matching globally and scale."

About Precision Cancer Consortium (PCC)
The Precision Cancer Consortium is composed of pharmaceutical and biotechnology companies focused on fostering collaboration on issues and opportunities related to precision oncology with the goal of improving patient outcomes by increasing cancer patient access to comprehensive genomic testing, including next generation sequencing, and addressing major gaps in precision diagnostics availability. For more information, visit the PCC website at https://www.precisioncancerconsortium.com/.

**PRECISION
CANCER
CONSORTIUM**

Massive Bio Launches Revolutionary ChatGPT Powered Chatbot Platform In ASCO 2023

Massive Bio, a world-renowned provider of personalized oncology solutions, is set to showcase its groundbreaking GPT4 AI chatbots - AskFiona AI and DrArturo AI at ASCO 2023. These innovative, AI-driven solutions will redefine cancer care, establishing new paradigms in patient and provider engagement and global oncological research.

"Massive Bio's ChatGPT-powered platform lies at the heart of the transformation in clinical trials. Incorporating AskFiona AI and DrArturo AI will transcend the capabilities of Massive Bio's existing SYNERGY-AI Clinical Trial Matching Solution, thereby heralding a new epoch in personalized oncology solutions. We are thrilled to constantly push the envelope in oncology clinical trial enrollment. By enabling these new solutions Massive Bio aims to further activate patient empowerment, unlock consumerization in healthcare and reduce the reliance to the hospital com-

petency specific healthcare system via the leverage of latest technology advancements such as generative AI. As a cancer patient you should be able to know all your clinical trial choices regardless of where you get your treatment and/or what your financial stability is" said Massive Bio's Co-founder and CEO, Selin Kurnaz.

Inspired by its own Co-founders and team members, AskFiona AI and DrArturo AI, enables simplicity, speed, improved engagement, and greater access to patients,

ChatGPT
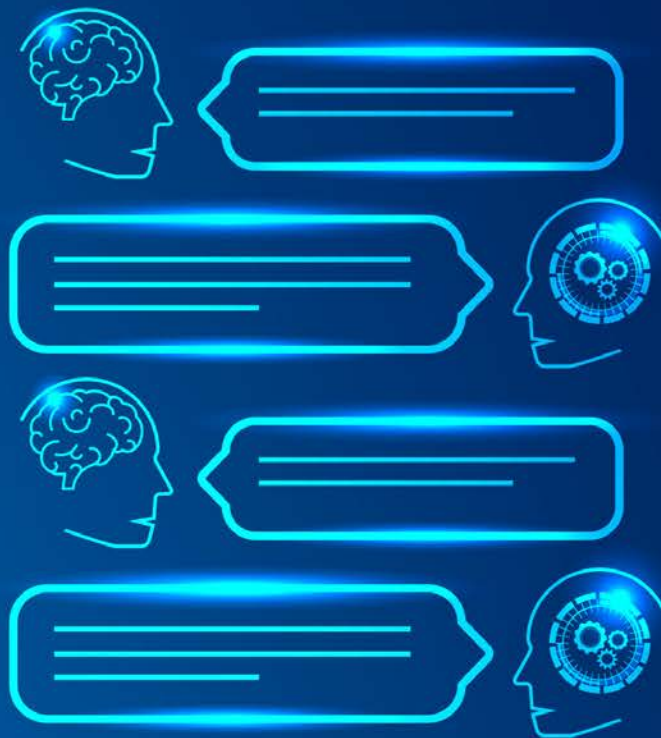
treating oncologists, site investigators and research coordinators during clinical trial selection and resolution of last mile issues during enrollment.

AskFiona AI, an advanced AI chatbot, serves as a comprehensive guide through the intricacies of clinical trials. By elucidating trial purposes, processes, and assessing patient eligibility, AskFiona AI aims to demystify the world of clinical trials, promoting clarity and fostering informed decision-making to cancer patients.

Adding depth to this patient-focused approach, DrArturo AI functions as an invaluable virtual oncology tool for providers including oncologists and hematologists. Offering detailed, personalized information about specific clinical trials, including treatment details and insurance acceptance, this AI tool aims to ensure patients, their families, and physicians are equipped with all necessary information to make informed decisions.

As a practicing physician and site investigator, Massive Bio's Co-founder and CMO, Dr. Arturo Loaiza Bonilla stated that "DrArturo AI also offers extensive benefits to site inves-

tigators and research coordinators. With its capacity to deliver detailed study explanations, respond to protocol-related queries, and provide access to vital documents and schedules, it is an indispensable asset. Furthermore, its ability to alert research teams about patient-reported outcomes and adverse events ensures a steady flow of crucial information, thus enhancing patient care and accelerating research."

"Set to make their debut at ASCO 2023, these AI chatbots encapsulate Massive Bio's dedication to employing AI technology to challenge the status quo in oncology. This pioneering approach is poised to transform the landscape of global oncology." said Massive Bio's Co-founder and CTO, Cagatay Culcuoglu.

We invite you to join us at ASCO 2023 to experience firsthand Massive Bio's revolutionary strides in personalized oncology solutions.

For further details, please visit www.massive-bio.com, https://askfiona.ai, https://drarturo.ai or interact with us on our social media channels.

SYNERGY-AI Experience with our ChatGPT Powered Chatbot Solution

Our dual-persona chatbot platform features Fiona AI and Dr. Arturo AI, each tailored to address different aspects of the clinical trial process, seamlessly complementing the power of SYNERGY-AI.

By integrating our ChatGPT-powered chatbot platform, you can expect:

· Enhanced Patient Outreach & Engagement: Fiona AI, our empathetic and friendly generalist chatbot, educates patients about clinical trials and assesses their eligibility, ensuring that only suitable candidates are escalated to Dr. Arturo AI for further information.

· Personalized & In-Depth Trial Information: Dr. Arturo AI, our expert and authoritative chatbot, provides comprehensive and personalized information about specific trials, creating a highly engaging experience for patients and complementing SYNERGY-AI's robust matching capabilities.

· Streamlined Collaboration with Physicians: Our chatbot platform empowers physicians with advanced knowledge about potential trials for their patients, fostering efficient communication between physicians, trial coordinators, and research teams.

· Comprehensive Support for Research Teams: Dr. Arturo AI offers invaluable assistance to site principal investigators and research coordinators, answering questions about protocols, study details, and key documents. It also triggers alerts for patient-reported outcomes and adverse events, enabling timely interventions.

· Improved Recruitment & Retention Rates: The seamless integration of our ChatGPT-powered chatbot platform with SYNERGY-AI simplifies the clinical trial process, ensuring that eligible patients are well-informed, engaged, and supported, ultimately leading to higher enrollment and retention rates.

We are confident that this innovative addition to our services will significantly enhance your experience with SYNERGY-AI and contribute to a more patient-centric approach in clinical trials. Our team is committed to ensuring a seamless integration of our chatbot platform into your existing systems.

Please don't hesitate to reach out to schedule a demo or discuss further how our ChatGPT-powered chatbot platform can elevate your clinical trial recruitment process. We look forward to continuing our partnership and supporting your research goals.

AskFiona AI Generalist Chatbot

AskFiona AI is the first point of contact for cancer patients seeking information about clinical trials. She is an empathetic and knowledgeable chatbot that provides general information about clinical trials, their purpose, and the overall process. AskFiona AI also assesses patient eligibility for more in-depth information and escalates them to DrArturo AI if appropriate.

AskFiona AI - Key Features
Massive Bio is proud to present our ChatGPT-powered chatbot platform, designed to provide comprehensive information and support for cancer patients, referring physicians, and site principal investigators along with their research coordinators. Our chatbot platform consists of two primary personas: AskFiona AI and DrArturo AI. These novel and best-in-class tools will be integrated into the already existing SYNERGY-AI Clinical Trial Matching Solution.

Empathetic and friendly persona:
· Approachable and supportive, putting users at ease
· Designed to establish trust and rapport with patients

General clinical trial information:
· Overview of clinical trials, their purpose, and potential benefits
· Guidance on the overall process, from screening to participation

Eligibility assessment:
· Asks targeted questions to determine a user's potential eligibility for clinical trials
· Escalates eligible users to DrArturo AI for in-depth trial information

User-friendly interface:
· Intuitive, easy-to-navigate layout
· Accessible on multiple devices, including smartphones, tablets, and computers

Multilingual support:
· Communicates with users in multiple languages to facilitate understanding and accessibility

Real-time assistance:
· Provides prompt and accurate responses to user inquiries
· Reduces wait time for information compared to traditional channels

Adaptive learning:
· Continuously improves its knowledge base and response accuracy through machine learning algorithms
· Stays updated with the latest information on cancer clinical trials

Data privacy and security:
· Complies with data protection regulations and maintains user confidentiality
· Ensures that sensitive information is handled securely and responsibly

DrArturo AI Augmented Intelligence Chatbot

DrArturo AI comes into play when a patient is deemed eligible for more specific information about clinical trials. He offers detailed insights about individual trials, as if he were a physician explaining the intricacies to a patient.

DrArturo AI Provides

· In-depth trial information
· Molecule and treatment details
· Schedule of events
· Nearest treatment facility
· Insurance acceptance and much more

For referring physicians, DrArturo AI delivers advanced knowledge about potential trials for their cancer patients. He offers logistical information, trial details, and contact information to facilitate collaboration between physicians and trial coordinators.

For site principal investigators and research coordinators, DrArturo AI is a versatile tool that can be activated for potential eligible and/or enrolled patients in unique trials. He is capable of:

· Explaining in-depth details about the study
· Answering simple and highly advanced questions about the protocol
· Providing access to key documents and schedule of events
· Triggering patient-reported outcomes and adverse events to the research team when mentioned by the patient
· Our ChatGPT-powered chatbot platform is designed to streamline the clinical trial process for all parties involved, fostering understanding, collaboration, and ultimately, better patient outcomes.

DrArturo AI - Key Features

Expert and professional persona:
· Knowledgeable and authoritative, providing reliable information
· Designed to instill confidence in patients and healthcare professionals

In-depth clinical trial information:
· Detailed trial descriptions, including objectives, treatments, and outcomes
· Molecule and treatment-specific information to support decision-making
· Customizable to any trial, sponsor, molecule or research program, and institution
· Adaptable to local standard of care testing and regional treatment options to support decision-making

Personalized trial recommendations:
· Analyzes user data to identify potentially suitable clinical trials
· Tailors suggestions to individual needs and circumstances

Schedule of events and logistics:
· Provides trial timelines, appointment scheduling, and important dates
· Shares information on the nearest treatment facilities and insurance acceptance

Collaboration with referring physicians:
· Offers advanced trial knowledge for physicians seeking options for their patients
· Facilitates communication between physicians and trial coordinators

Support for site principal investigators and research coordinators:
· Activates chatbot for eligible or enrolled patients in unique trials
· Answers questions about protocols, study details, and key documents

Patient-reported outcomes and adverse events:
· Triggers alerts to the research team when patients mention outcomes or adverse events
· Supports timely response and intervention by clinical teams
· Fully aligned with known AEs from standard or care, if applicable, and CTCAE criteria

User-friendly interface:
· Intuitive, easy-to-navigate layout optimized for various devices
· Seamless integration with existing systems and platforms

Multilingual support:
· Communicates with users in multiple languages to increase accessibility

Real-time assistance:
· Provides immediate and accurate responses to user inquiries
· Enhances the efficiency and convenience of information access

Adaptive learning:
· Utilizes machine learning algorithms to continuously refine its knowledge base
· Keeps up to date with the latest advancements in cancer clinical trials

Data privacy and security:
· Adheres to data protection regulations and maintains user confidentiality
· Safeguards sensitive information with robust security measures

Massive Bio Expands Operations with New Branch at Teknopol Istanbul,
Driving Innovation in Oncology Solutions!

Massive Bio, a leading company in the field of biotechnology, is excited to announce the expansion of our operations with a new branch at Teknopol Istanbul, located within the Health Sciences University Technology Development Zone Health Technopolis.

This strategic expansion represents our commitment to fostering innovation and bringing cutting-edge oncology solutions closer to the oncology/hematology ecosystem. Our experience and innovative approach will undoubtedly contribute to our mission of providing personalized cancer care, focusing on clinical trials and treatment selection. We would like to extend our gratitude to Orhan Comlek, CEO of Teknopol, and his team for their invaluable support.

As a company that competes with artificial intelligence giants on a global scale, Massive Bio took its place in the Health Technopolis A.S., within the Technology Development Zone of the Health Sciences University, in the first week of May 2018. With relentless efforts to strengthen and expand our activities worldwide and reach a wider audience of cancer patients, Massive Bio aims to enhance its position in the industry through new projects utilizing artificial intelligence infrastructure under the umbrella of Teknopol.

Massive Bio, a leader in the field of biotechnology, provides comprehensive molecular profiling to cancer patients through Next-Generation Sequencing (NGS) testing, offering personalized services at the right time and scale. When cancer patients enter their information into our system, Massive Bio's artificial intelligence algorithms match them with relevant clinical trials, directing them to the most suitable treatment options.

Using various artificial intelligence algorithms, including NLP (Neuro-Linguistic Programming) and computer vision, Massive Bio matches clinical research data from around the world with patient data. Thanks to Massive Bio's end-to-end AI technology, patients can access the most suitable treatment method for themselves within minutes.

Teknopol not only provides infrastructure support but also consultancy to all participating companies, including Massive Bio. Teknopol is a significant center that contributes to the development of new technologies and various products, paving the way for our country's technological advancements. Teknopol Istanbul, located within the Health Sciences University, continues to thrive and embrace many successful firms with the support and guidance of its General Manager, Dr. Orhan Comlek, and his dedicated team.

According to Cagatay Culcuoglu, Co-founder and CTO of Massive Bio, "We are delighted to establish a new branch at Teknopol Istanbul, further expanding our reach in the field of oncology solutions. This strategic move aligns with our mission of leveraging advanced technologies, such as artificial intelligence and molecular profiling, to provide personalized and timely cancer care. Teknopol's supportive environment and expertise in technology development will undoubtedly accelerate our efforts in improving patient outcomes and revolutionizing cancer treatment. We look forward to collaborating closely with Teknopol and the thriving ecosystem it offers."

Being a part of Teknopol and having a presence in Istanbul will further fuel Massive Bio's ambition and dedication to its work, driven by its new artificial intelligence projects. With the collaboration between Massive Bio and Teknopol, we aim to reach even more cancer patients, provide them with alternative treatment options, and play a more active role in the fight against cancer, striving to eradicate this disease from the world.

WHAT ARE THE STAGES OF BREAST CANCER?

Doctors use a system called staging to describe the extent of a patient's cancer. Unique staging systems are used for different forms of cancer. In breast cancer, doctors use two systems. One is called TMN staging.

T is for a tumor's diameter. T may be followed by a number (from 0 to 4) or letters. The higher the number, the larger the tumor. Letters, if present, indicate other information about the tumor. (An X indicates the tumor can't be studied.)

N is for the number of diseased axillary lymph nodes a patient has. N is followed by a number (from 0 to 3) that indicates how many lymph nodes test positive for cancer. The higher the number, the more lymph nodes involved. (An X indicates the lymph nodes can't be studied.)

M is for metastasis, or how far the cancer has spread to other parts of the body. M is followed by a 0 (no metastasis) or 1 (metastasis to other organs or tissues detected). cM0 (i+) indicates that a small amount of cancer cells are found in the blood or lymph nodes.

Other factors are considered in staging breast cancer, including whether the tumor has estrogen or progesterone receptors, makes high amounts of a protein called HER2, and the appearance (or grade) of the cancer cells.

Doctors also use a numbering system to stage breast cancer, usually with roman numerals, ranging from 0 to IV.

Stage 0 describes non-invasive forms of breast cancer such as DCIS. Stages I, II, III, and IV are invasive forms of breast cancer. Within each stage, there are subcategories (noted by letters, such as IB) that denote factors such as whether or not a tumor appears to be aggressive.

But, in general, the higher the stage number, the more likely that breast cancer has spread to lymph nodes or, in the case of stage IV, to other organs such as the bones, liver, or brain, making it more challenging to treat.

WHAT ARE THE RISK FACTORS FOR BREAST CANCER?

Having breast cancer, and especially receiving treatment for the disease, can have long-term effects on your body and mind in the form of increased risks for other medical conditions. Your doctor will keep an eye on the following, in particular.

Breast Cancer Risk Factors You Can't Change
Here's a list of risk factors for breast cancer that you cannot change, according to the Centers for Disease Control and Prevention (CDC).

Age: The risk for breast cancer increases as you grow older. While young women can develop breast cancer, most cases are diagnosed in women over 50.

Your genes: Having mutations (alterations in DNA) in certain genes inherited from your parents (notably the BRCA1 and BRCA2 genes) increases the risk for breast cancer, as well as ovarian cancer.

Your reproductive history: If you had your first menstrual period prior to age 12 or began menopause after age 55, your risk is increased.

Dense breasts: A breast is considered dense if it has a lot of connective tissue. That doesn't cause cancer, but it can make tumors harder to detect with mammograms.

Previous breast cancer or non-cancerous condition: If you have had breast cancer, your risk for a second bout with the disease is increased. The same is true if you have been diagnosed with certain non-cancerous breast diseases, such as atypical hyperplasia or lobular carcinoma in situ.

Family history: Your risk rises if you have a close blood relative—such as your mother, sister, or daughter—who had breast cancer; if more than one family member on either your mother's or father's side had breast or ovarian cancer; or you have a close male relative (father, brother, or son) who had breast cancer.

Prior treatment with radiation therapy: Radiation treatment is a critical tool in treating many forms of cancer, but in some cases it may increase the risk for breast cancer later in life.

Exposure to DES: The drug diethylstilbestrol (DES) was used to prevent miscarriage in pregnant women in the United States between 1940 and 1971. Unfortunately, DES increased the risk for breast cancer in these women and their daughters.

BREAST CANCER
RISK FACTORS YOU CAN CHANGE

The good news is that you have the opportunity to lower some significant breast cancer risk factors, including the following.

Inactive lifestyle: Your risk for breast cancer is reduced if you exercise or get some form of physical activity on a regular basis. Experts recommend at least 150 minutes a week of moderately intense exercise, such as brisk walking.

Being overweight: Carrying too much weight, especially after menopause, increases your risk for breast cancer, among other diseases.

Using hormone therapy: Short-term use of hormone replacement therapy that includes both estrogen and progesterone during menopause may be safe, but studies suggest that this treatment can raise risk for breast cancer if taken longer than five years. Use of certain oral contraceptives can increase risk, too.

Pregnancy history: Never having children, having your first pregnancy after age 30, and never breastfeeding are all associated with an increased breast cancer risk.

Excessive alcohol consumption: Alcohol is associated with an increased risk for breast cancer—the more you drink, the higher the risk.

MANTLE CELL LYMPHOMA:
Clinical Trials and Treatment Options

WEBINAR

Fiona Evans
Lead Patient Advocate

Dr. Jose Sandoval
Hematologist

The Mantle Cell Lymphoma (MCL): Clinical Trials and Treatment Options Webinar features Hematologist Dr. Jose Sandoval and Massive Bio Director of Patient Advocacy Fiona Evans. During the livestream hosted by Massive Bio, Fiona asks Dr. Sandoval different questions on Mantle Cell Lymphoma topics such as symptoms, new treatments, clinical trials, how to stay up to date with your options, and more.

Watch our webinar to learn more about Mantle Cell Lymphoma

WHY SHOULD I ENROLL IN A CANCER CLINICAL TRIAL?

Enrolling in a clinical trial can give you access to new cancer therapies months and even years before they are available to other patients.

Your doctor may suggest a clinical trial if you have advanced cancer that is not responding to standard treatments. However, a clinical trial can be an option for a cancer patient at virtually any stage of their treatment regimen.

Enrolling in a clinical trial also means you will be receiving treatment from top doctors, nurses, and other healthcare professionals who are leaders in their fields. What's more, many patients who have participated in clinical trials say that they gained great satisfaction from knowing that they played a role in the development of a new treatment that could help others in the future.

Who Can Enroll In A Clinical Trial?
Every clinical trial is carefully designed to determine whether a new treatment is safe and effective for a specific population of patients. When researchers plan a clinical trial, they develop a profile of the type of patients they want to include.

Using this profile, the researchers draw up

a list of criteria that patients must meet to be eligible for the trial. Eligibility criteria for a clinical trial includes features such as age, sex, type and stage of cancer, previous treatments received, and others.

An increasing number of oncology clinical trials require participants to have one or more specific cancer biomarkers, which are gene mutations, proteins, and other molecules that can provide information about a patient's tumor, such as whether it's likely to spread (or metastasize) slowly or aggressively. In some cancers, these biomarkers can make a patient eligible for a type of medication called a targeted therapy. Cancer biomarkers can be identified with lab tests.

HOW CAN I FIND A CLINICAL TRIAL FOR PATIENTS LIKE ME?
Your doctor may be able to refer you to a clinical trial for people who have your type of cancer or who have specific cancer biomarkers.

You can also search for clinical trials on clinicaltrials.gov, an online database maintained by the U.S. National Library of Medicine at the National Institutes of Health. However, the descriptions of clinical trials you will find on this site, known as protocols, frequently include scientific language that is complex and difficult for the average person to understand. Massive Bio specializes in matching people with cancer to clinical trials. We use an artificial intelligence-based platform called SYNERGY-AI to identify clinical trials that precisely match a patient's unique profile and treatment needs.

Our patient advocates and nurse oncologists assist a patient in identifying the right trial, then guide him or her through enrollment and the entire treatment process.
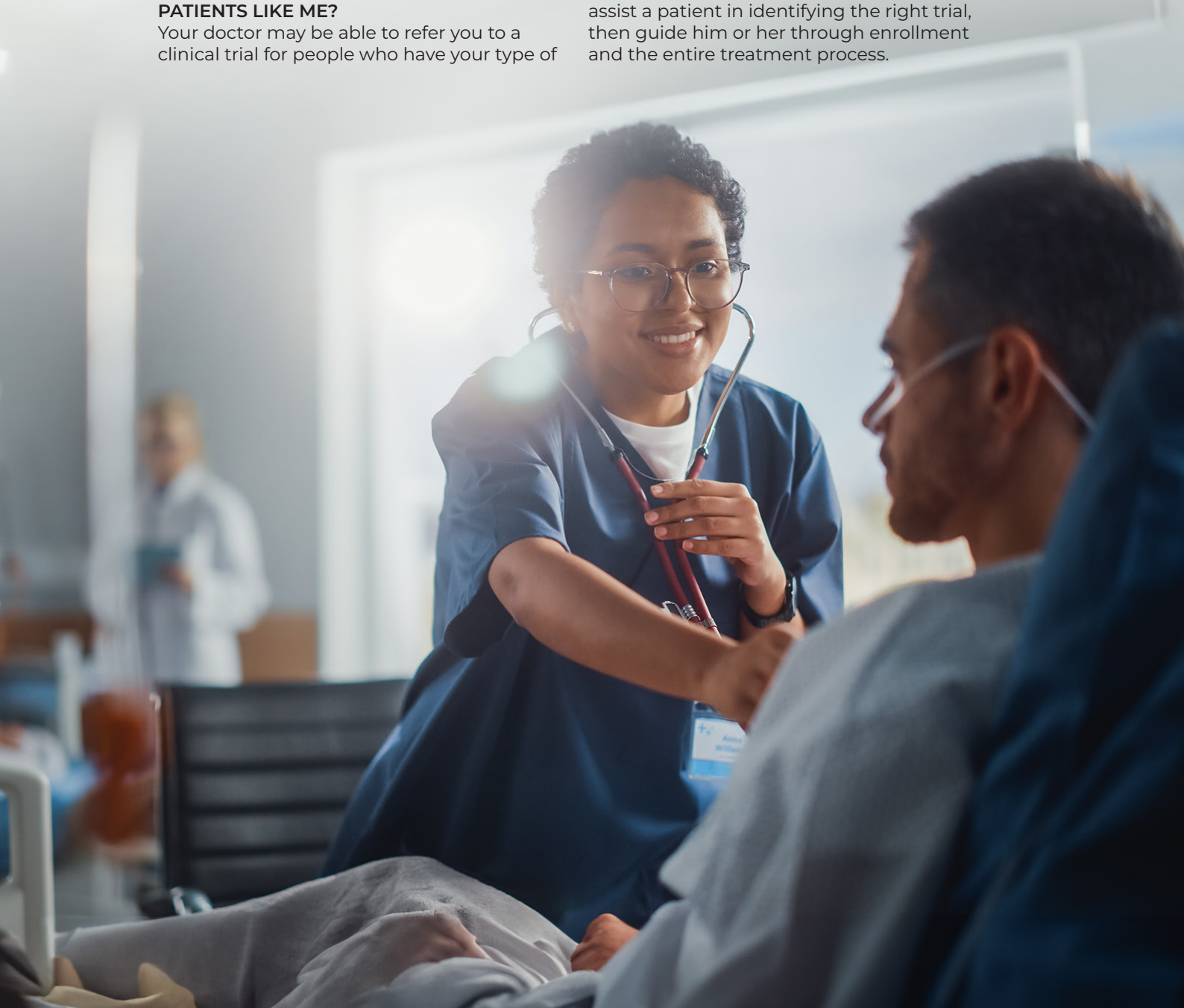
Massive Bio and The Oncology Institute (TOI)

Forge Partnership to Revolutionize Cancer Care and AI-enabled Cancer Research

Massive Bio, a leader in leveraging artificial intelligence and concierge services to empower cancer patients, is thrilled to announce a non-exclusive partnership with The Oncology Institute (TOI), a premier provider of cutting-edge cancer care.

This strategic alliance aims to redefine the landscape of cancer treatment by harnessing advanced AI technology and establishing an extensive nationwide network.

Under this visionary collaboration, Massive Bio will support TOI with evaluating the eligibility of patients for TOI's active clinical trial portfolio, utilizing their cooperative business model driven by AI and precision medicine. By leveraging sophisticated algorithms and comprehensive diagnostic information, Massive Bio will empower patients and ordering physicians at TOI with clinical decision-support and clinical trial matching services.

Cristina Green, Vice President of Clinical Research, shared her enthusiasm for this partnership, stating, "This collaboration with Massive Bio complements our ability to connect patients with advanced cancer therapies and cutting-edge clinical trials. By leveraging AI-driven precision medicine, we are confident that this partnership will accelerate breakthroughs in cancer research and deliver life-changing treatment options to our patients."

"We are incredibly excited about joining forces with The Oncology Institute," said Selin Kurnaz, Ph.D., CEO of Massive Bio. "This partnership will not only revolutionize cancer care but will also empower patients with access to the most advanced precision medicine available. Our combined expertise will open new doors for patients, connecting

The Oncology Institute of Hope & Innovation

them to potentially life-saving treatments and groundbreaking clinical trials."

Furthermore, this collaboration will expand the scope of cancer research through Massive Bio's recent ChatGPT-powered chatbots for oncology research release during ASCO 2023. Dr. Arturo Loaiza-Bonilla, renowned oncologist and a key figure in the development of the chatbot technology, stated, "We are proud to be part of this innovative partnership between Massive Bio and TOI. The integration of AI-driven chatbots with clinical decision-support tools will revolutionize the way researchers access and analyze oncology data, enabling more efficient and impactful research initiatives, and will bolster this newly forged alliance to the betterment of all cancer patients."

The alliance between Massive Bio and TOI represents a paradigm shift in cancer care, combining the power of advanced AI technology, personalized therapy, and an extended network of research collaborations. Together, these industry leaders are poised to reshape the future of oncology and bring new hope to patients and their families.

About TOI
Founded in 2007, TOI is advancing oncology by delivering highly specialized, value-based cancer care in the community setting. TOI offers cutting-edge, evidence-based cancer care to a population of approximately 1.8 million patients including clinical trials, transfusions, and other services traditionally associated with the most advanced care delivery organizations. With 100+ employed clinicians and more than 700 teammates in over 60 clinic locations and growing, TOI is changing oncology for the better. For more information visit www.theoncologyinstitute.com.

CANCER COMMUNITY HUB:
Unveiling a Comprehensive Platform for Cancer Education, Support, and Discussion

Today, It has been made announces the launch of the Cancer Community Hub, a revolutionary new online platform designed to facilitate knowledge sharing, provide resources, and foster a sense of community for people impacted by cancer.

The Cancer Community Hub offers detailed insights into various types of cancer such as Myelofibrosis, Multiple Myeloma, Lymphoma, Non-small Cell Lung Cancer, Esophageal Cancer, Melanoma, Breast Cancer etc. each category features a wealth of information, including physician articles, cutting-edge research, engaging infographics, and educational content, making it a valuable resource for those seeking reliable information about cancer.

Erkan Terzi
Massive Bio CMO

"This platform is designed to serve as an all-inclusive resource for the cancer community. We know they're working tirelessly to ensure it's regularly updated with the latest cancer-related research, news, and trials," said Erkan Terzi, the visionary behind the Cancer Community Hub. "They wanted to create an online hub

where everyone affected by cancer can learn, connect, share, and find comfort in knowing they are not alone. We are here to support them in many areas for cancer patients."

Additional features of the Cancer Community Hub include:

Forum: Users can engage in discussions, open new topics, favorite selected topics, add and quote posts, like & dislike posts, share posts, edit their profile pages, use the search feature, and report inappropriate content.

Resources: The platform includes access to newsletters, magazines, guidelines, and a cancer-specific dictionary, delivering up-to-date information to educate and support those living with cancer and their loved ones.

Clinical Trials & Research: Users can learn about ongoing clinical trials and access current research developments in the field of oncology.

Videos & News: A variety of educational and news videos offer further insights into the world of cancer.

"We've put the needs and experiences of our patients together at the forefront of everything we do," Terzi added. "By facilitating informed conversations and providing a platform to share personal experiences, we hope to empower people on their journey with cancer."

The Cancer Community Hub is now open for registration, offering various membership options to cater to the diverse needs of its patiens.

For more information about the Cancer Community Hub, please visit www.cancercommunityhub.org

I HAVE CANCER

#ihavecancer #cancerawareness #massivebio

MULTIPLE MYELOMA
SYMPTOMS AND SIGNS

Symptoms and signs are what lead us to the path of diagnosis of a disease. A symptom is a change or a condition in the body that the patient experiences, such as pain, nausea, or fatigue. It is subjective in nature. A sign on the other hand is an objective change or condition in the body such as fever, blood pressure, or heart rate but observed, evaluated, or measured by a person other than the patient. In this piece, we will go over the common symptoms and signs that multiple myeloma patients experience.

WHAT ARE THE SYMPTOMS OF MULTIPLE MYELOMA?

Although some types of multiple myeloma are asymptomatic, some are symptomatic. Most patients do not present any signs or symptoms in the early stages, which leads to a late diagnosis of the disease. So how is it possible to diagnose multiple myeloma in the early stages? It is usually discovered during a physical examination, or a urine or blood test intended for another reason.

There are some common symptoms such as thirst, dehydration, frequent urinating, constipation, and confusion that many patients with other diseases experience as well. This is one of the reasons why many patients do not suspect multiple myeloma soon. In this part, we will go over some specific symptoms indicating the presence of multiple myeloma including various problems related to blood, bone, kidney, and nervous and immune system.

Bone-related problems: One of the most common symptoms experienced by multiple myeloma patients is bone-related problems, we will briefly go over them.

Bone pain: Many patients visit the doctor with a complaint of pain in either their back, hips, or skull.

Weakness in bones: When myeloma is present, the regenerative process of the bones is interrupted; the cells (osteoclast and osteoblast) that help the bone stay strong and healthy are decreased. This eventually leads to bone weakness. When the patient suffers from multiple myeloma in the spine, their vertebrae become weak, get compressed and thus might lead to shortening height of the patient.

Broken bones: Broken or fractured bones are common in multiple myeloma patients. The reason for it is the accumulation of myeloma cells in the bone marrow and the cortical bone (the protective layer on the outer bone). The accumulation causes the bone to become thinner, which is called osteoporosis, the condition where the bones become easily breakable or fractured. The more fractured or broken the bones are, the higher the patient's calcium levels increase. This leads to hypercalcemia, which causes various side effects such as kidney damage, constipation, and drowsiness.

Blood-related problems: When myeloma causes the plasma cells to overgrow and leave no room for other blood cells, this leads to various blood-related problems.

Anemia: The lack of or decreased levels of red blood cells in the body is called anemia, which causes the patient to experience weakness and fatigue.

Thrombocytopenia: This means the lack or decreased level of platelets in the body, and results in easy bleeding (such as in the nose or gums) and bruising.

Leukopenia: It refers to the lack or decreased level of white blood cells in the body, which causes a lowered defense against infections.
Hyperviscosity: Refers to the condition where the blood is so thickened that it affects the circulation in the whole body. It causes problems such as cloudy vision.

Neurological problems: These problems might have various causes such as uremia, hyperviscosity, or hypercalcemia. In addition to these metabolic conditions, some patients experience neurological complications caused by cranial nerve infiltration, spinal cord compressions or peripheral neuropathy.

Kidney damage: The abnormal and uncontrolled increase in the calcium level in the body is called hypercalcemia, which is the main reason for kidney damage in multiple myeloma patients.

Weight loss: This is generally a common result of various symptoms multiple myeloma patients are experiencing such as hypercalcemia, kidney damage, or abnormal changes in the blood. Hypercalcemia generally causes loss of appetite, which leads to weight loss.

Fatigue: Fatigue is generally a result of the anemia experienced by the patient. Sometimes, other cellular problems such as the overproduction of cytokine might be the reason for fatigue in multiple myeloma patients.

MASSIVEBIO
SUPPORTS

DONATION for LIFE

REIGNITING THE CANCER MOONSHOT:
MASSIVE BIO JOINS CANCERX AS FOUNDING MEMBER TO ACCELERATE INNOVATION AND AI IMPLEMENTATION IN CANCER CARE

Massive Bio, a globally recognized leader in the oncology space, has proudly announced its appointment as a founding member of CancerX, a groundbreaking initiative endorsed by The White House.

This appointment situates Massive Bio at the forefront of a national public-private partnership aiming to revolutionize the fight against cancer. Spearheaded by the rejuvenated Cancer Moonshot, CancerX is co-hosted by Moffitt Cancer Center and the Digital Medicine Society (DiMe), bringing together diverse stakeholders to foster greater equity and reduce financial toxicity in cancer care and research.

As cancer continues to pose a significant global challenge, Massive Bio stands committed to mitigating this scourge. Selin Kurnaz PhD, Co-Founder, and CEO of Massive Bio echoed the firm's unwavering dedication to connecting cancer patients with clinical trials, regardless of their location or financial circumstances. "Massive Bio is proud to be part of this transformative journey. Being chosen as a founding member of CancerX confirms our dedication to advancing precision oncology and democratizing access to groundbreaking cancer treatments. We aim to bridge the divide between cancer patients and the world of clinical trials, inspiring a movement that boosts clinical trial enrollment rates to 20% in the United States," stated Dr. Kurnaz.

Dr. Arturo Loaiza-Bonilla, Co-Founder, and Chief Medical Officer of Massive Bio em-

CO-HOSTED BY

phasized the vital role of clinical trials in the quest for improved cancer treatments. He noted, "All therapeutic innovations in oncology have emerged thanks to clinical trials. Yet, most patients don't have access to them. We aim to change that." Dr. Loaiza-Bonilla highlighted the firm's commitment to provide all cancer patients with equal access to cutting-edge treatments and emerging clinical trials, irrespective of their location or financial capability.

Smit Patel, Associate Program Director of the Digital Medicine Society (DiMe) expressed his excitement about the new collaboration. He said, "Multi-stakeholder collaboration is critical to harness the potential of digital innovation in the fight against cancer, and we're honored to partner with Massive Bio to achieve the ambitious goals of CancerX. Through this impressive collaboration, we will establish best practices, build capacity, and demonstrate the impact of innovation on the life of every person on a cancer journey.

As a trailblazer in the application of artificial intelligence in oncology, Massive Bio's involvement in CancerX symbolizes a significant leap towards combining the best resources from public and private sectors to expedite innovation in the fight against cancer. The alliance showcases the power of public-private partnerships in leveraging technology to advance precision oncology, clinical trials, and cancer research, thereby transforming the future of oncology and setting a new precedent for the role of AI in combating cancer.

About CancerX:
CancerX is a public-private partnership announced by The White House as a national accelerator designed to boost innovation in the fight against cancer as part of the reignited Cancer Moonshot. The initiative is co-hosted by Moffitt Cancer Center and Digital Medicine Society (DiMe) and aims to convene diverse stakeholders necessary to enhance the fight against cancer. CancerX is primarily focused on advancing digital innovation to improve equity and reduce financial toxicity in cancer care and research.

WHAT ARE THE TYPES OF
NON-SMALL CELL LUNG CANCER?

The most common subtypes of NSCLC are adenocarcinoma, squamous cell carcinoma, and large cell carcinoma.

Adenocarcinoma: This is the most common type of NSCLC in many parts of the world. Adenocarcinoma is usually found in the outer parts of the lung and may spread to the lymph nodes. Lung adenocarcinomas begin in cells that normally secrete substances such as mucus. It is more common in women than men. Although this form of NSCLC is associated with a smoking history, it can also occur in non-smokers.

Squamous cell carcinoma: This form of NSCLC starts in squamous cells, which are flat cells that line the inside of the lungs, and most often in the main airway (or bronchus). This type of cancer has also been associated with a history of smoking.

Large cell carcinoma: These malignancies can appear anywhere in the lung. They tend to grow and spread rapidly, which can make treatment a challenge. Sometimes called undifferentiated carcinoma.

WHAT IS THE DIFFERENCE BETWEEN NON-SMALL CELL LUNG CANCER AND SMALL CELL LUNG CANCER?

NSCLC has a better prognosis than SCLC.

When SCLC cells are examined under a microscope, they appear small and round. Non-small cell lung cancer cells are larger.

NSCLC grows slowly, while SCLC grows much more aggressively.

NSCLC is far more common, accounting for up to 85 percent of lung cancer cases. SCLC is rarer and accounts for 10 to 15 percent of cases.

According to the National Cancer Institute, the overall five-year survival rate for NSCLC is 26 percent. The overall five-year survival rate for SCLC is 7 percent.
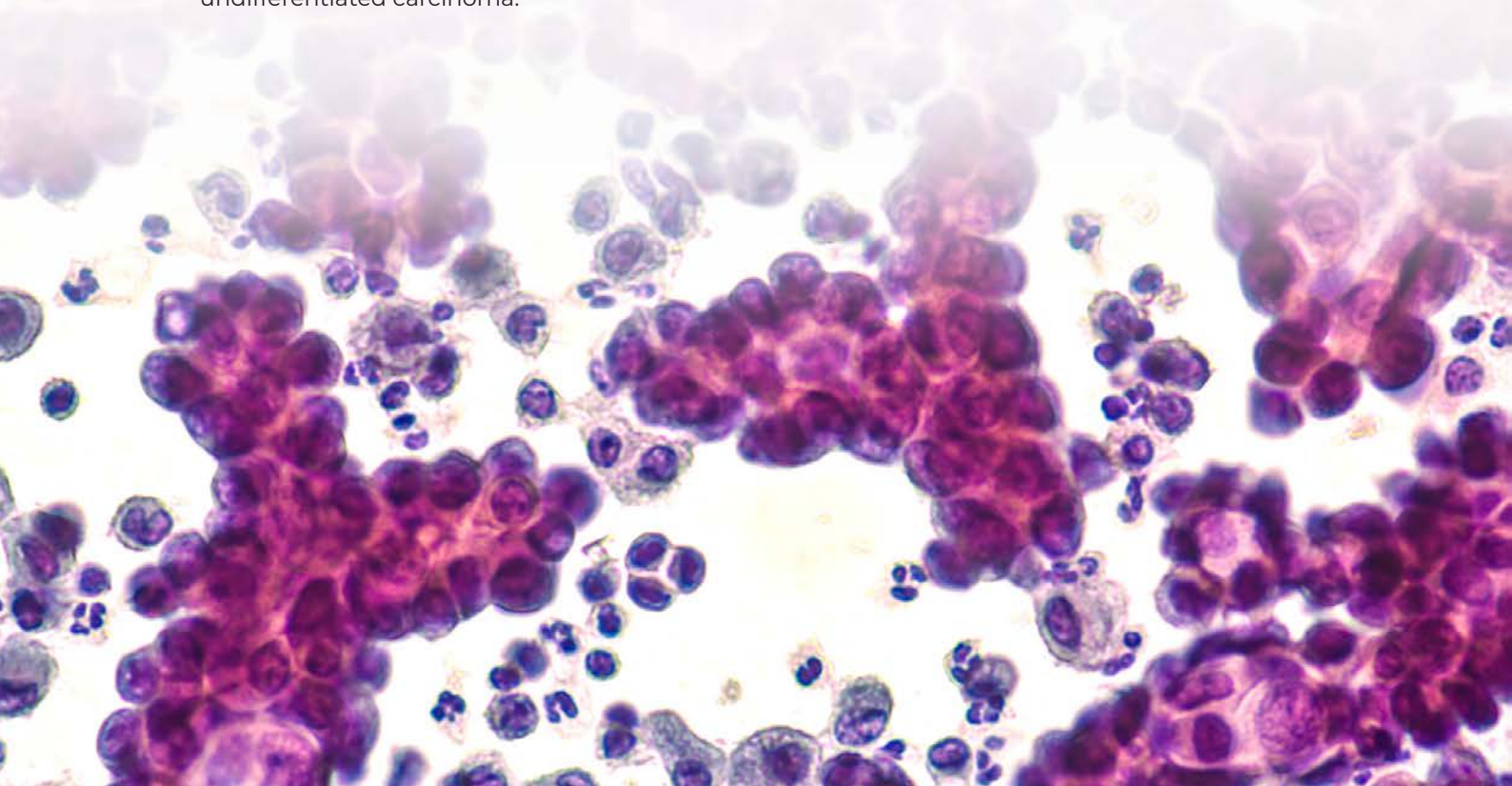
DO YOU HAVE INOPERABLE lung cancer?

We are here to help!

LUNG CANCER

Lung cancer occurs when cells grow out of control and form a malignant tumor in the lungs. There are two main forms of lung cancer: non-small cell lung cancer (NSCLC), which accounts for 80 to 85 percent of cases; and small cell lung cancer (SCLC), which makes up 15 to 20 percent of cases.

Common Symptoms and Signs
According to the American Cancer Society, these are the most common signs and symptoms of lung cancer:

	Persistent cough that does not go away or worsens		Unintended weight loss
	Coughing up blood or rust-colored sputum (spit or phlegm)		Shortness of breath; feeling tired or weak
	Chest pain that may feel worse when you breathe deeply, cough, or laugh		Frequent, hard-to-treat infections such as bronchitis and pneumonia
	Hoarseness		Wheezing
	Loss of appetite		

If lung cancer spreads to other parts of the body, it may cause:

	Bone pain		Seizures
	Headache		Jaundice (yellowing of skin and eyes)
	Weakness or numbness in the limb		Swollen lymph nodes in the neck or above the collarbone
	Dizziness, balance problems		

Risk Factors

Smoking cigarettes is by far the biggest risk factor for lung cancer, accounting for 80 to 90 percent of cases. Other risk factors include:

🚬	Smoking cigars, pipes, or other tobacco products
	Exposure to secondhand smoke
	A family history of lung cancer
	Exposure to radon and asbestos
	Radiation treatment to the chest

Who Gets Lung Cancer?

Three quarters of lung cancer deaths occur in people **aged 65 and older.**
In the United States, men and women have similar rates of lung cancer, though men are 42 percent more likely to die of the disease, according to the American Lung Association.
Death rates from lung cancer are highest among Black males, who are 23 percent more likely than white males to die of this disease. But Black women are significantly less likely than white women to develop lung cancer.

Countries with the highest rates of lung cancer, in order:

1. Hungary
2. Serbia
3. New Caledonia
4. French Polynesia
5. Turkey
6. Montenegro
7. Belgium
8. Bosnia and Herzegovina
9. North Korea
10. Denmark

How Common Is Lung Cancer?

Lung cancer is the second-most common cancer in the world (after breast cancer), with an estimated **2.2 million cases diagnosed in 2020.**
However, lung cancer is the deadliest form, responsible for **about 1.8 million deaths around the world each year.**

In the United States, lung cancer is the second most common cancer (not including skin cancer), after prostate cancer (among males) and breast cancer (among women).

The American Cancer Society predicts that in 2023:

- There will be **about 238,340 new cases** of lung cancer diagnosed **in the United States** (117,550 in men and 120,790 in women)

- There will **be about 127,070 deaths** from lung cancer **in the United States** (67,160 in men and 59,910 in women)

Estimated number of clinical trials of lung cancer treatments around the world that are recruiting patients: **more than 1,500.**

Scan the QR Code to learn more about Massive Bio

Massive Bio: Empowering Cancer Patients with AI Technology and Transforming Clinical Trials

Massive Bio, a leader in personalized oncology solutions, is revolutionizing cancer care with its AI technology. Their ChatGPT-powered chatbot platform and Clinical Network Portal streamline access to clinical trial information, enhance patient management, and foster collaboration.

With a global presence and recognition in the StartUp 100 list, Massive Bio is committed to empowering patients, transforming clinical trials, and improving outcomes.

Massive Bio, a leading provider of personalized oncology solutions, is revolutionizing the landscape of cancer care through its cutting-edge AI technology and commitment to equitable access. The company, founded in 2015 by clinical, technology, and M&A executives, has rapidly emerged as a global force in the fight against cancer. Led by co-founders Selin Kurnaz (CEO), Arturo Loaiza-Bonilla (Chief Medical Officer), and Cagatay Culcuoglu (Chief Technology Officer), Massive Bio harnesses the power of artificial intelligence to provide cancer patients with the best treatment options available. By leveraging state-of-the-art technology, the company improves equitable access, precision targeting, clinical trial matching, drug matching, and drug development.

"At Massive Bio, our mission is to empower cancer patients and transform the way they access and navigate their treatment options," says Selin Kurnaz, CEO of Massive Bio. "Through the integration of AI technology and human expertise, we remove barriers in clinical trial enrollment, value-based oncology decisions, and data-driven cancer treatment. Our innovative solutions ensure that patients receive personalized and optimized care."

The cornerstone of Massive Bio's offerings is its ChatGPT-powered chatbot platform, which revolutionizes information access and support for cancer patients, referring physicians, and site principal investigators. The platform introduces two primary personas:

NO RESPONSE TO RUXOLITINIB (JAKAVI)?

Promising new treatments are available for Myelofibrosis (MF) with active symptoms

Enroll Now

AskFiona AI and DrArturo AI, designed to enhance the existing SYNERGY-AI Clinical Trial Matching Solution.

"The ChatGPT-powered chatbot platform developed by Massive Bio streamlines the clinical trial process, enabling improved understanding, enhanced collaboration, and ultimately, better patient outcomes," explains Cagatay Culcuoglu, Chief Technology Officer of Massive Bio. "Our advanced technology combined with empathetic virtual personas has transformed how patients, physicians, and researchers access and interact with clinical trial information."

In addition to the groundbreaking chatbot platform, Massive Bio is proud to announce the launch of its Clinical Network Portal. This comprehensive web-based platform empowers oncology and hematology physicians, optimizing patient care throughout the clinical trial journey.

The Clinical Network Portal represents a significant milestone in Massive Bio's commitment to empowering physicians, streamlining operations, and delivering the highest standard of patient care throughout the clinical trial journey. By providing physicians with a comprehensive and user-friendly platform, Massive Bio aims to revolutionize patient referral for clinical trials, ultimately accelerating

the development of innovative therapies and improving patient outcomes.

"We are thrilled to introduce the Clinical Network Portal, a groundbreaking product that will transform how physicians track and monitor patients referred for clinical trials within the Massive Bio network," says Arturo Loaiza-Bonilla, Chief Medical Officer of Massive Bio. "This innovative platform streamlines operations, enhances patient care, and ensures physicians have access to vital information for effective decision-making."

Massive Bio's dedication to excellence has not gone unnoticed. The company has been listed among the prestigious StartUp 100 and serves more than two dozen pharmaceutical companies, contract research organizations, and hospital networks. It has also been awarded an SBIR contract by the National Cancer Institute, solidifying its position as a trusted partner in the fight against cancer.

As Massive Bio continues to advance its AI technology and expand its global presence, the company remains steadfast in its mission to empower cancer patients, revolutionize clinical trials, and improve outcomes. Through the integration of AI, empathy, and cutting-edge solutions. Massive Bio is paving the way for a brighter future in cancer care.

Jose's Journey With Cancer:
Finding Hope!

Meet Jose, a myelofibrosis patient from Spain who was diagnosed with cancer and struggled to find a treatment that worked for him. In this video, Jose shares his experience with myelofibrosis and how he found hope.

Watch his video to get to know Jose better!

Massive Bio and Datavant Expand
Partnership to Integrate Datavant's Medical Record Retrieval Capabilities to Revolutionize Patient Care and Clinical Research

Massive Bio, a leader in leveraging artificial intelligence and concierge services to empower cancer patients, and Datavant, the leader in helping organizations securely connect data, are thrilled to announce an expanded partnership that leverages Datavant's national scale in medical record retrieval and Massive Bio's expertise in AI-driven clinical trial matching to accelerate clinical research and improve patient care in cancer.

This expanded partnership builds upon an earlier pilot that enabled Massive Bio to request, retrieve, and digitally deliver clinical data with higher reliability, faster speed and greater coverage across sites of care, thus significantly improving patient outcomes while ensuring compliance and data privacy.

Massive Bio's CEO, Selin Kurnaz, emphasizes the significance of this partnership: "By integrating Datavant's cutting-edge technology, we are making a leap in the provision of personalized cancer treatments. This collaboration empowers us to scalably access patient medical records for any patient in the

country in a secure and compliant manner, thereby accelerating our ability to provide data-driven, personalized care."

Dr. Arturo Loaiza-Bonilla, Co-Founder and Chief Medical Officer at Massive Bio, adds: "By leveraging the Datavant Switchboard, we are strategically positioned to drive meaningful cost savings while improving patient care. Especially for our oncology patients, the ability to obtain complete clinical histories from the medical record would be a challenge. We are thrilled to be working with Datavant, whose national scale of data connectivity can help us access full medical

records, including unstructured data, that is essential to our work. Datavant is transforming how clinical data is used and shared, ultimately bringing us closer to achieving our mission of providing the right treatment to the right patient at the right time."

"We are excited about this partnership with Massive Bio. Their innovative approach to personalized cancer care aligns with our mission of securely connecting health data to improve patient outcomes," says Tal Rosenberg, President, Emerging Businesses & Chief Partnerships Officer at Datavant. "This collaboration not only marks a significant step forward in patient care but also emphasizes our commitment to reducing friction and increasing security in health data exchange."

With this expanded partnership, Massive Bio will integrate Datavant's medical record retrieval capabilities into Massive Bio's operations in order to expedite the identification of potential clinical trial participants and speed up time to insight in clinical research.

About Datavant
Datavant's mission is to connect the world's health data to improve patient outcomes. Datavant works to reduce the friction of data sharing across the healthcare industry by building technology that protects the privacy of patients while supporting the linkage of patient health records across datasets. Learn more about Datavant at www. datavant.com.
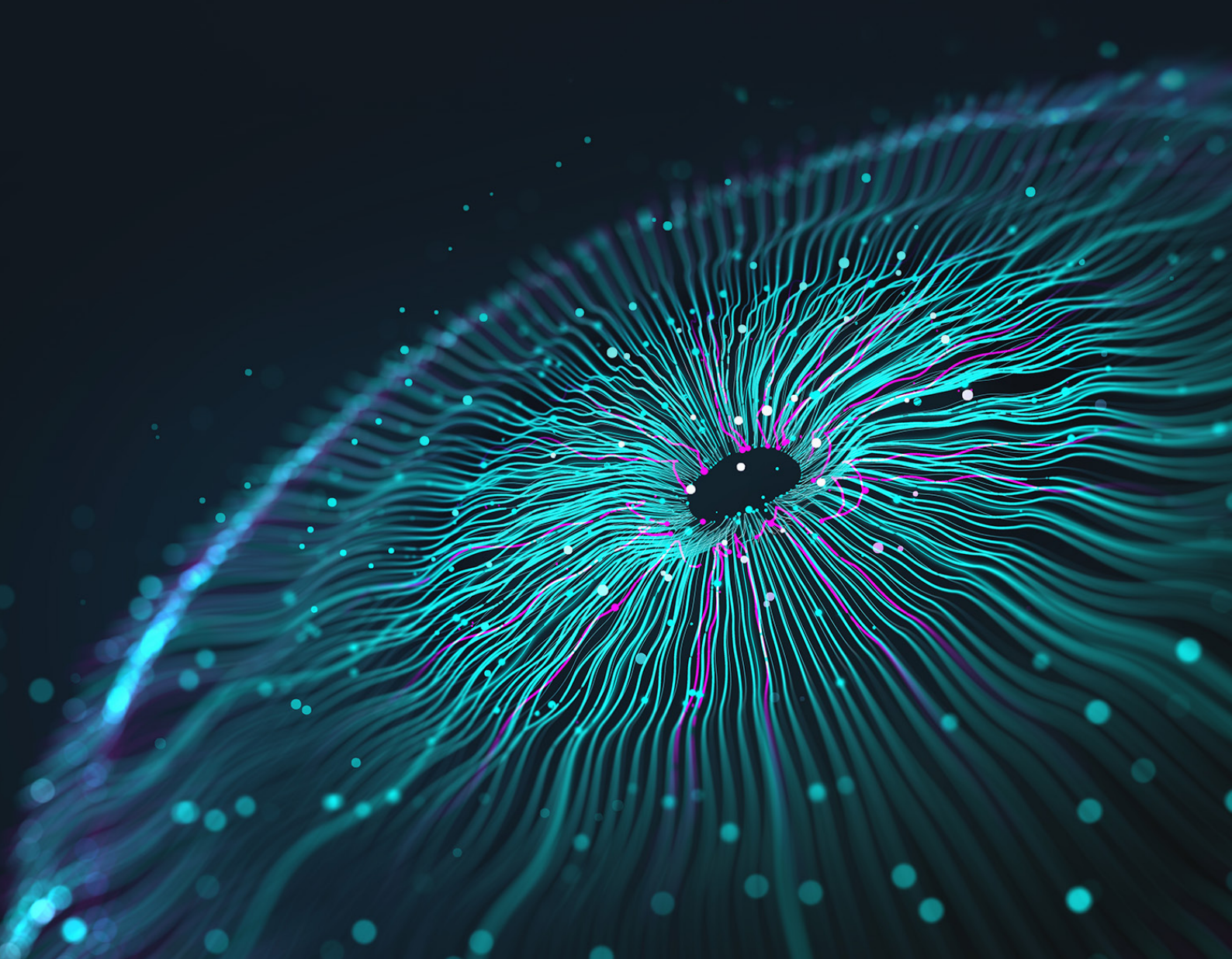
Cancer and Diet

Will choosing the right foods help you defeat cancer?

Can you fight cancer with a fork? Scientists have been studying the link between diet and cancer for decades. While no single food or nutrient has emerged as the ultimate defense against malignancies, plenty of research indicates that making the right choices when you tuck in your bib can help guard against cancer and give you a boost if you're currently receiving treatment, including several recent studies.

For example, in a 2022 paper published in the journal Menopause, researchers found clues that women who eat plenty of fish may also gain some protection against breast cancer. In the study, 1,589 women in China with breast cancer were asked to describe their diets in great detail, as were 1,621 similarly aged women who didn't have breast cancer. The study showed that women who consumed the most fish had a 32 percent reduced risk for breast cancer compared to those who ate the least.

The authors of the study suspected that the omega-3 polyunsaturated fatty acids in fish may protect against breast cancer and some other cancers, possibly by reducing inflammation. There are well-established reasons to include more fish in your diet, such as lowering your risk for heart disease and keeping your weight under control, so swapping a cheeseburger for a salmon filet is a no-lose exchange.

And how about some broccoli with that salmon? The cruciferous vegetables are another group of foods that have garnered great interest from cancer researchers. They include not only broccoli, but also vegetables such as arugula, Brussels sprouts, cabbage, cauliflower, kale, turnips, and others. Scientists have determined that compounds in cruciferous veggies seem to rev up a gene called P53, which is one of several tumor suppressor genes in the human body. The job of P53 and its mates is to control cell division and repair DNA, which helps quash the rise and spread of cancerous tumors. (Being born with mutations in P53 increases the risk for gastric, small intestine, colon, liver, and pancreatic cancers.) Studies have found that people who eat a lot of broccoli and other cruciferous foods have reduced risks for prostate, breast, colorectal, and lung cancers.

However, rather than focusing on single "magic foods" to fight cancer, it may make more sense to adopt a general pattern of healthy eating, say scientists who study diet and cancer. For instance, there's intriguing research suggesting that vegetarian or vegan diets shield against many forms of malignancies. Some of the most-persuasive studies have involved members of the Seventh Day Adventist Church, many of whom are vegetarian; those who eat meat, tend to do so sparingly.

In a 2020 study in the journal Cancer, researchers found that cancer rates were 30 percent lower among Seventh Day Adventists compared with the general U.S. population, while rates of premature death from any cause were 33 percent lower. It's difficult to draw conclusions from studies like this because the lower cancer and death rates among Seventh Day Adventists are likely influenced by various factors—very few of them smoke tobacco, for instance, and they exercise more than other Americans, too. But the authors of the study argued that diet likely plays an important role in the Seventh Day Adventists' lower cancer risk.

Other research has linked plant-based diets to lower cancer risk, which appears to be due to what they include, and don't include. For starters, fruit and vegetables are rich in cancer-fighting compounds such as antioxidants, which latch onto and disarm harmful molecules called free radicals that can damage healthy cells and promote disease, including cancer. If you're eliminating meat, you're probably consuming more grains, preferably whole grains, which are

an excellent source of dietary fiber. A 2022 review in Nutrition and Cancer found that people who consume the most fiber are about 25 percent less likely to develop colorectal cancer than people who eat the least, while research also suggests that eating lots of roughage can limit the risk of some other cancers. There are additional chemicals in plant foods that probably protect against cancer, too, though they're less well understood.

Plant-based diets also lack some elements that make the typical American diet so unhealthy. They tend to be low in calories, for one thing, which helps you stay trim—and obesity is a known risk factor for many types of cancer. They also limit or omit meat, and diets that are rich in steaks, chops, and especially processed meats such as deli ham and salami are associated with colorectal and other forms of cancer. You don't have to give up meat entirely to adopt a plant-based diet—simply eat modest portions, and not every day, while filling your dinner plate with vegetables and healthy grains. If you need some guidance on reduc-

ing your meat intake and including more healthful foods in your meal plan, read up on the Mediterranean diet, which includes little meat or junk food, but plenty of fish, fruit, vegetables, nuts, and olive oil. Not only has it been shown to reduce the risk for heart disease and stroke, but research also indicates that it's a cancer fighter, too.

Steering clear of these consumables may reduce your risk for certain types of cancer.

Foods and Beverages To Limit or Avoid

Alcohol

Studies show that regularly consuming alcoholic beverages increases the risk for some forms of cancers. That includes cancer of the oral cavity (that is, tissue in the mouth, other than the lips), throat, larynx (voice box), esophagus (windpipe), liver, breast, colon, and rectum. The increased risk is dose dependent, that is, the more you drink, the more likely you are to develop cancer.

Charred meat

Cooking meat with high heat, such as in a frying pan or on a grill, can cause it to char. This process produces chemicals called heterocyclic amines (HCAs) and polycyclic aromatic hydrocarbons (PAHs) that have been shown to cause cancer in laboratory animals. While their effect on humans is less clear, some evidence points to an increased risk for certain cancers, especially colon cancer. The longer you cook meat, the more HCAs it forms. Meanwhile, smoked meats also tend to have high levels of PAHs (which are found in tobacco smoke and automobile exhaust, too). HCAs and PAHs can form in beef, pork, fish, and poultry that is cooked at high temperatures. Briefly pre-cooking meat in a microwave oven or marinating it in wine or beer (which are rich sources of antioxidants) before cooking may help reduce formation of HCAs and PAHs.

Processed meats

A number of studies indicate that a diet rich in processed meats such as ham, salami, and baloney increases the risk for colorectal and stomach cancers. Consuming these deli favorites may also raise the risk for certain other cancers, including pancreatic cancer and lung cancer. If you include them in your diet at all, make them a rare treat.

Sweets

All cells in the human body require a basic form of sugar called glucose to survive. That includes cancer cells, so some people have wondered whether consuming sugar feeds the growth of tumors. Your body can get all the glucose it needs from healthy foods, such as fruit, and by making it from starch in other foods, such as grains (preferably whole grains), and both of these food groups have other nutrients to offer, too. But candy, soda, cakes, cookies, and other sweets are empty calories that do nothing but contribute to weight gain. And studies show that being overweight or obese increases the risk for colorectal, breast, ovarian, and pancreatic cancers, among others. If you have a sweet tooth, keep it in check.

Awareness Calendar

July

Sarcoma Awareness Month

UV Safety Month

Cord Blood Awareness Month

August

National Immunization Awareness Month

World Lung Cancer Day (August 1st)

September

Childhood Cancer Awareness Month

Gynecologic Cancer Awareness Month

Leukemia and Lymphoma Awareness Month

October

Breast Cancer Awareness Month

Liver Cancer Awareness Month

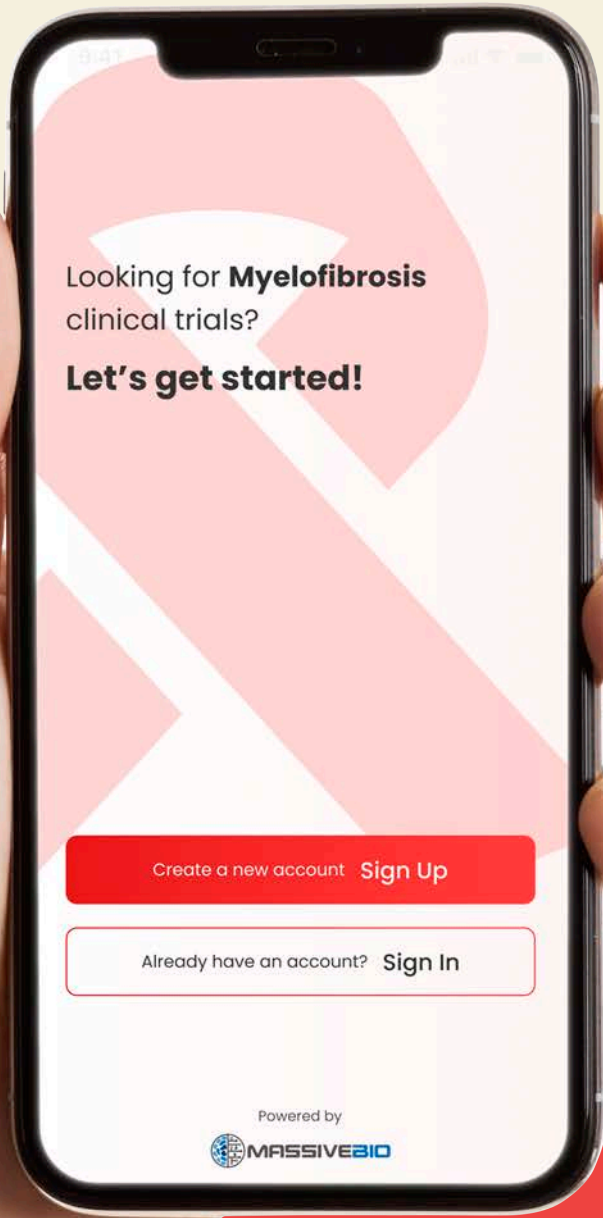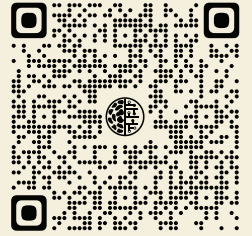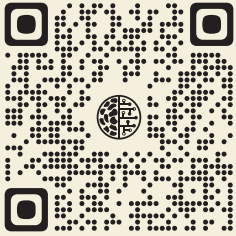World Hospice And Palliative Care Day (Oct 8)

Metastatic Breast Cancer Awareness Day (Oct 13)

National Health Quality Week (Oct 16-22)

National Mammography Day (Oct 21)
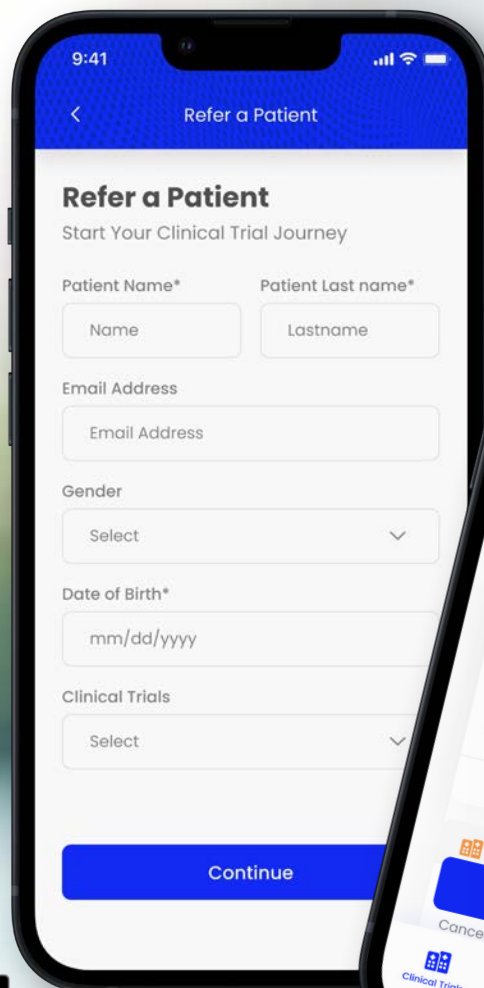
Massive Bio offers one-of-a-kind,

personalized, hassle-free, and evidence-based services to myelofibrosis patients.

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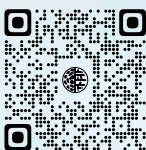
SYNERGY-AI Cancer Clinical Trial Finder is a mobile app that uses your cancer type, stage, biomarker status, and other data points to identify clinical trials of cutting-edge treatments, at research sites near you. Contact us about enrolling in a clinical trial and let Massive Bio do the rest.