the WINNOWER

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# Science AMA Series: Hi, I'm Marc Hurlbert, PhD, Chief Mission Officer of BCRF, where I run the organization's $59.5 million grants program helping the world's leading breast cancer researchers pursue their best ideas. AMA!

MARC_HURLBERT R/SCIENCE

Hi reddit,
My name is Marc Hurlbert and I am the Chief Mission Officer of The Breast Cancer Research Foundationhttps://www.bcrf.org/, the nation's highest rated breast cancer organization. I lead BCRF's $59.5 million research portfolio which is distributed in grants to over 275 scientists this year alone.
We fund the best and brightest researchers in the world. They come from all disciplines of science and are given the freedom to pursue their most creative ideas and promising research leads. A scientist myself, I am particularly interested in metastatic disease and disparities that exist among various ethnic groups in breast cancer care.
I will be answering your questions at 1PM ET today – Ask Me Anything!



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Hi Marc, and thank you for doing this AMA.

Metastatic disease, in my mind, represents the greatest unmet need in the breast cancer space. We cure very few of these patients. And the thinking about how to manage quality of life/treatment trade-offs is still a bit muddled.

What type of projects is BCRF currently funding in this space? Looking at your whiteboard, what type of projects are you most excited about moving forward?

For me, PARP inhibitors and better antibody drug conjugated seem like the most likely exciting drivers of clinical advances in metastatic breast cancer in the coming years. Are there therapies on the horizon that have you excited?

SirT6

Hi, I absolutely agree! Women and men living with metastatic disease urgently need new treatment options. Firstly, we don't accurately know how many people are living with MBC in the US or around the world. So, myself and the MBC Alliance partnered with NCI-SEER to develop the best population estimates. In addition, I chair the MBC Alliance, which is a group of 30 nonprofits and 10 pharmas and individual patients working together to accelerate MBC research. I am most excited that we continue to identify drugable targets in MBC - e.g. TNBC is now broken down into four subtypes, and a list of new targets are known. This year new MBC data came out from the BCRF AURORA project, from a French cohort, the Michigan MET500 cohort, and from MBC Project (just today). Scientists are identifying new targets unique to mets, separate from how we treat the primary. Immunotherapy looks promising in some cases, as do other targeted therapies for MBC. We're advancing the science, but need to rapidly

translate those lab discoveries to the clinic. We still have a long way to go. MBC research is a top priority for BCRF and many other funding organizations.

As someone who is interested in metastatic disease, do you find yourself trying to push for more research funding towards late stage breast cancer?

AdamSOF

Yes, AdamSOF. BCRF is the largest nonprofit funder of MBC research this year, and have provided tens of millions over the last few years. As part of that, we fund $31-million multi-year initiative called the Evelyn H. Lauder Founder's Fund for Metastasis Research. This supports two clinical trials studying mets tissue compared to the primary tumor, as well as intervening blood samples; as well as supporting MBC Project at the Broad Institute - Dana-Farber; a collection of brain metastasis; and the development of lab models that can be shared across labs.

What is your opinion about the appropriation of funds raised for cancer research through charity? Specifically, how some charities could be considered scams. How should this issue be a addressed? Also, when choosing projects to fund. Do you target projects that complement each other? Or projects that are distant and are tackling breast cancer from a different angles.

nocob

It is important for the public that want to donate to cancer research to find a top-ranked nonprofit is through CharityNavigator or CharityWatch, independent 'watch dog' groups. A recent article discusses this topic. At BCRF we use a strategic and targeted approach to look at our broad portfolio, and then aim to fund research that fills gaps. This year, BCRF is funding $59.5 million to 275 scientists across the US and 15 countries. It's a big portfolio of research all aimed at curing and preventing breast cancer!

How is big data being used in breast cancer research?

Neometek

BCRF is funding a lot of 'big data' projects in breast cancer research. Big data is being used to understand the complex biology of metastatic breast cancer, that is how a cell leaves the breast, enters the blood or lymph system, and spreads to distant organs like the liver, lung, brains, bones, skin, etc. Another use of 'big data' is clinically: it is possible to get a deep genome analysis of patients inherited genes and gene mutations, as well as an analysis of the tumor markers and gene mutations in the primary tumor in the breast, the tumor at metastatic sites for the patient that has metastatic breast cancer, as well as analyzing the tumor cells and tumor DNA circulating in the blood, at many time points throughout the course of diagnosis and treatments. Big data is being used to make sense of all the 'clinically available samples. Today, physicians do not know (yet) how best to use all of that data to make the best treatment decisions, but they are unraveling all of the info. Other projects use applied mathematics bringing computational and biological scientists together (Mathematical Oncology Initiative and AMIGOS); other projects are trying to standardize how we measure cancer cells and DNA in blood (the Blood Profiling Atlas Consortium). Still there is other work analyzing tumor cell DNA, RNA and protein at the single-cell level; while at the other end of the spectrum data scientists are analyzing "big data" to determine if and to what extent a stage IV cancer diagnosis causes financial hardship across the population of patients. Big data plays a major role in BC research, and one day, I believe clinical care.

Thanks for coming to talk with us. I am a breast cancer survivor and regular donor to BCRF. At some point during my treatment, I was asked if I would be willing to have my data shared with researchers and nonprofits. I took a deep breath and said yes (if any good can come of it....) . Later, I researched a number of different charities and decided to make an annual donation to BCRF and ignore the others. But saying yes to my information being shared has led to my getting a number of telephone solicitations I did not want. One caller (after I politely said I had made my donations for the year) even argued with me--"but don't you want to help women with breast cancer?!" I wish I could've filled out the form "share for research but not fund raising." Do other medical providers handle this better? How do we better educate the public about charity expense ratios and how to make a wise choice with their donation dollars?

asbruckman

Hi, great question. Just to clarify: BCRF never gives or sells your name to any other group. BCRF NEVER makes telephone solicitations. Providing your information voluntarily for research through a vetted organization can be an important tool for research—whenever you do this, your information should never be shared with third party groups. A good way to find a top-ranked nonprofit is through CharityNavigator or CharityWatch, independent 'watch dog' groups. They rank the top-rated breast cancer charities: Here is one recent one: And, THANK YOU! for your donations to BCRF! BCRF is A+ and 4-star-out-of-4-star rated, and efficient with more than 90cents going to programs.

What's the toughest call between two projects you could have funded and had to choose between?

AdrianBlake

Hi AdrianBlake, I've worked for nonprofit research funding / grant-making foundations for 17 years. In my jobs (prior to BCRF), for everyone one scientist who got a grant, I had to tell 7 or 8 others "no; sorry your proposal was not funded". It is never easy! Fortunately every nonprofit I have worked for had outstanding scientific advisors that guide the review process.

At BCRF, and in some of my prior roles, when it came down to 2 highly rated projects I have (i) gone and fundraised more money so that the foundation could fund both; and (ii) funded one right away, and invited the other back into the next grant cycle.



Thank you to the Winnower!

Are there new hormone replacement therapies that are safe for perimenopausal women or should women refrain from HRT if anyone in their family has had breast cancer?

KathNYC1111

Hi KathyNYC, I would strongly encourage you to talk to your primary care doc or Ob/Gyn. The American Cancer Society states this: "Avoid or limit hormone replacement therapy. "Hormone replacement therapy (HRT) was used more often in the past to help control night sweats, hot flashes, and other symptoms of menopause. But researchers now know that postmenopausal women who take a combination of estrogen and progestin may be more likely to develop breast cancer. Breast cancer risk appears to return to normal within 5 years after stopping the combination of hormones."

Hi Marc!

As a researcher, I've participated in a number of grants that funded: "only the brightest and most visionary" (none by your foundation nor for breast cancer). I think that they are completely unfair.

First you need to hype up your research to make it sound like you're going to revolutionize the world. To do this, you often even have to hire specialists in buzzwords to pimp your grant. Then your grant gets rejected because the funding agency has funds only for the top "2%" and you were in the top "3%". However, given that scores are based on super-vague metrics like: "potential impact", "innovative content" and things like that... Is getting a score of 96% really worse than a score of 99%? Or is just pure luck?

Wouldn't a lottery be fairer?

lucaxx85

Hi there, thanks for your comment and question. BCRF uses a unique grant-making model that is invitation-only. BCRF decided to do this because there are dozens of other "open" systems including NIH, National Science Foundation, Department of Defense, and other foundations that fund breast cancer research. It is hard to say if a lottery system would be better. BCRF's system allows us to quickly ramp-up research in areas - for example metastatic breast cancer research in 2012; other years recruiting more radiation oncologists, or immunologists. BCRF's grants are on behalf of the person, and not tied to the project. That is, a scientists is not tied down to finishing "aim 1, aim 2 and aim 3"; often when you do aim 1 of a project your scientific discovery might lead you in a different direction. The BCRF funding model enables scientist the flexibility to be as creative as possible.

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lucaxx85

Hi Lucaxx85, Have you seen this article about federal funding?

Dr. Hurlbert, What kind of studies is BCRF currently funding with respect to Triple Negative Breast

Cancer? And, How are the researchers chosen to be funded by BCRF? Is there a process or procedure that should be followed, or is it on a invitation only basis? Thank you.

LeopardLatte

Hi there, BCRF is funding 60 or more projects in triple negative breast cancer (TNBC) with over $16 million in funding for TNBC from BCRF this year. Our projects include everything from basic research, diagnostics, to new treatment and clinical trials. Women and men with TNBC, especially metastatic TNBC, urgently need more treatment options. BCRF funded research has helped us determine there are ~4 main subtypes of TNBC. Now, BCRF investigators are funding clinical trials specifically targeting subtypes. Trials include immunotherapy for metastatic TNBC, testing targeted agents, and attempting to optimize chemotherapy. The BCRF grant process is on our website. BCRF grants are by invitation-only, at least at this time. BCRF funds the best-and-the brightest scientists, people not projects. Sort of like the Howard Hughes Medical Institute investigators or the MacArthur Genius Awards.

Hi Dr. Hurlbert,

I have a few questions for you:

- Can you discuss the new drugs approved for breast cancer this year?
- What age do you recommend women start mammograms?
- And what kind of treatment do you recommend for DCIS?

ceward01

Hi there, There have been several new drugs approved. A new class of drugs called CDK4/6 inhibitors has been approved for treatment estrogen positive metastatic breast cancer (MBC) in combination with anti-estrogen therapy. These include Ibrance (palbociclib), Kisqali (ribociclib) and Verzenio (abemaciclib). Kisqali and Verzenio were approved this year; Ibrance approximately 18-20 months ago.

Another new drug was approved for HER2+ breast cancer: Nerlynx (neratinib) is a drug approved for "extended adjuvant" therapy for patients diagnosed with early-stage, HER2+ tumors that have previously been treated with the drug called Herceptin (trastuzumab). We're making progress in new treatment options for early BC and MBC. But not quickly enough! We need more effective breast cancer treatments with fewer side effects.

You should talk to your doctor about what age, and how often, to have mammogram screening. Risk factors, family history and risk assessment may play into their recommendations.

For DCIS, again I encourage you to discuss with your breast surgeon or oncologist. You should inquire whether your DCIS is a candidate to be tested with a diagnostic test such as Oncotype DCIS. You can learn more here.

How are CRISPR and AI technologies being used in breast cancer research?

mccluresc

1337HxC gave a good answer. CRISPR is not used clinically (yet. if ever?); CRISPR is used to make new cell lines and new animal models. One, of many, possibilities in the future might be to create 'super T cells' that attack a breast cancer, like T cells and the immune system attack viruses or bacteria. Today, that is just a hypothetical for breast cancer.

AI, I believe, has the possibility of helping scientists and clinicians decipher complex information from huge data sets. For example we can study the DNA, RNA, proteins, protein modifications from the tumor; from the blood; from metastatic tumor sites; and if you add in the rest of what makes up a person (their co-morbidities, lifestyle factors, general health, complementary integrative medicines, etc). How do we understand all that is going on in a woman or man with breast cancer, metastatic breast cancer and other issues with their health and bodies? AI, I think will help us decipher best treatment options, predict responses to treatment, response duration, when best to scan or switch treatments. One small step towards this effort was part of the MBC global report.

With regard to triple negative research, which targeted treatment do you think holds the most promise? What's the best way to review the triple negative studies that you're funding?

Flynn08

It is hard to predict which treatments are most likely to be successful. There are 4 'subtypes' of triple-negative. One TNBC subtype appears more likely to respond to immunotherapy; and another TNBC subtype has androgen receptor. Luminal AR TNBC may respond well to anti-androgen therapies, such as those on the market for prostate cancer. Clinical trials in AR+/TNBC are underway. There are many promising, druggable targets being explored for TNBC.

Here are few links to BCRF funded TNBC work short overview, immunotherapy and vaccines, and a slightly older summary.

Hey Marc,

What advice to you have to science undergrads right now. I'm a biophysics major and I have no clue what I want to do to have success in science. My major is mainly physics oriented and I'll have been through some decently high level math my the time I graduate.

youcradbro

Hi there, I encourage to find the science that you are most passionate about. Stay passionate and take chances! Work on your communication skills - because no matter how brilliant your idea, if you cannot explain to others then it is hard to secure funding, publish, etc. You should work on both science- and -lay- communications. Can you explain your work to a friend or family member who doesnt know anything about science? I encourage you to find multiple mentors. Ask this same question to mutliple professors or scientists who currently hold positions that might be of interest to you. Makes sense? I'll direct message you, too.