



**THE EHE FOUNDATION
THE EHE RARE CANCER CHARITY (UK)
THE EHE RARE CANCER FOUNDATION (AUSTRALIA)**

Fundraising and Research Objectives

Thank you for taking the time to find and engage with our ‘**Fundraising and Research Objectives**’. In this file note we have provided an overview of what we are trying to achieve with regard to the critical EHE research we are supporting and the associated funds we are seeking to raise. If you are also interested in assisting us with raising funds then please also read our file note ‘**Fund Raising Ideas for EHE Rare Cancer Research**’ where different fundraising ideas have been listed.

Our Foundation and Charity Network

The EHE Foundation in the United States of America, The EHE Rare Cancer Foundation Australia, and The EHE Rare Cancer Charity (UK) (collectively the “EHE Group”) are three sister not-for-profit organisations that have been established by our members. These three sister organisations were independently established in 2015 with three primary and common objectives:

1. Supporting EHE patients worldwide;
2. Raising funds to support critical EHE research; and
3. Acting as advocates for EHE awareness and engagement.

The EHE Group have been established and are supported by EHE patients and their families and friends, bringing the energy, enthusiasm and dedication that comes from people who are directly impacted by the cancer we are fighting. We remain grateful to all our supporters for their ongoing support and enthusiasm. We hope that you may join them and help us beat EHE.

Our Funding and Research Goals

Our goal is ultimately to defeat EHE through the discovery of drug regimens and treatments that will allow us to manage, control and eventually defeat EHE. However, to achieve this we must first understand this rare cancer. We know that it can present in both an indolent (dormant) and aggressive phase, yet we have no idea what dictates which phase is present, nor the trigger(s) that cause the indolent form to become aggressive, nor the reasons why it is often aggressive in young adults. We do not know what causes EHE, what factors may lead to a person being predisposed to EHE, or how it spreads; nor do we understand the natural history of this cancer.



The EHE Group is therefore dedicated to promoting and supporting the research programme necessary to find the answers to these questions. This research programme is currently being led by Dr Brian Rubin from his research laboratories in the Cleveland Clinic in the USA, in collaboration with other American and international research facilities and cancer clinics.

Ultimately the support we can provide to the research programme comes in two important forms. Firstly, our members can provide statistically important data and detailed information relating to themselves and the cancer that they have. This is the type of collected patient data that typically is not available for rare cancers, and can provide critical information and insight to medical and research specialists working with EHE. Secondly, and more fundamentally, research cannot progress if it is not funded. The lack of governmental funding for rare cancer research is almost total, while the amounts provided from established charities and foundations is also extremely limited at the early stages of such research. Our charity will therefore continue to strive to raise the funds needed to allow EHE research to progress and lead to the answers we need to ultimately beat this disease.

Why is research so important?

We cannot fight rare cancers such as EHE without first understanding their natural history, including why they occur, how they spread, what are the biological processes that are involved, and what factors may dictate their location and severity. All these questions can be answered, but only by undertaking painstaking and focused research. This will include the development of living cell models to provide the material needed to test and evaluate a wide range of ideas and theses, and ultimately to test different treatments and drug regimens to identify those that work and will help us defeat this cancer.

Why is rare cancer research such a challenge?

Research programmes into common cancers are extensive and worldwide, with very large patient groups for data gathering and significant opportunities to obtain real tissue samples. Rare cancers however are very different, with extremely limited patient numbers and tissue access. Rare cancer research programmes are very limited and funding for them even more so. All too often it can appear that they are the ‘forgotten part’ of the cancer battle. In many cases no research may be taking place at all. Our own investigations suggested that major cancer charities and organisations, including sarcoma-specific groups, are not funding research into EHE. But we have **VERY GOOD NEWS** on this front because in 2010 a dedicated EHE research programme was initiated from the research facilities at the Cleveland Clinic in Ohio, USA (see the **Research Program** section below for more detail on this programme). It is this research programme that the EHE Group is seeking to help fund through our funding objectives.

Who leads the research effort?

The Cleveland Clinic EHE research programme was initiated and is led today by Dr Brian Rubin, one of America’s preeminent medical research scientists. Dr Rubin is passionate about finding answers to the many questions about EHE. He is also passionate about maintaining an open and collaborative programme with other cancer specialists and centres of expertise to maximise the progress made from the limited funding that is available. In the limited time that the programme has been in place the potential cause of EHE has already been discovered. We are extremely excited that a multifaceted research programme led by such a capable scientist is already in progress.



The Research Program

The immediate and ongoing research focus of the programme being led by Dr Rubin involves four major areas:

Development of cell and animal-based model systems. Dr Rubin is actively trying to grow EHE cells in culture. He also has a genetically engineered EHE mouse model under construction. This is particularly important as it may allow the generation of an inexhaustible supply of cells which will be available to study the biology of EHE and to test therapies, with a potentially huge and positive impact on the ongoing research programme.

Diagnosis. Dr Rubin is developing molecular tools that take the guess work out of diagnosing EHE, providing pathologists with tools to objectively classify tumors as EHE. This is an important element of the research program as diagnosis of EHE has been a stressful and confused process for many of our members.

Prognosis. In collaboration with Cornell University Medical College, Dr Rubin is studying the genetics of EHE to understand which tumors will progress and which won't. This is a fundamental question that is key to the management of EHE. He is also working with researchers at the Translational Genomics Research Institute (TGen) to try and detect circulating EHE tumor DNA in the blood of EHE patients in order to determine when tumors are progressing or whether or not patients are responding to therapy.

Treatment. With a lot of rare cancers, it is difficult to do clinical trials, so drugs are used 'off-label' in an experimental fashion, because there is no other recognized therapy for the patients. Dr Rubin means to change this by picking drug targets based on his mechanistic research and work with oncologists to do clinical trials. His research group is already studying one inhibitor, trametinib (Mekinist), which is having very beneficial effects in his cell-based model. One patient has been using the drug off-label and is showing a good response. Dr Rubin hopes to start a clinical trial of trametinib in the near future.

Dr Brian Rubin, MD, PhD

At the current time the EHE Group is focused on funding the international research programme being led by Dr Rubin. Details about Dr Rubin are provided below.



Dr Brian Rubin, MD, PhD is Professor of Pathology, Vice-Chair of Research within the Pathology Institute, and Director of Soft Tissue Pathology at the Cleveland Clinic. He received his PhD in molecular biology and his MD from Cornell University Medical College. He did his residency in Anatomic Pathology at Brigham and Women's Hospital and received fellowship training in soft tissue pathology, bone pathology, and cancer genetics.

Dr. Rubin has dedicated his career to a diagnosis and classification of soft sarcomas, where he is a prominent figure nationally and internationally. He is widely regarded as a thought leader in the field and is a founding member of the International Society of Bone and Soft Tissue Pathology.

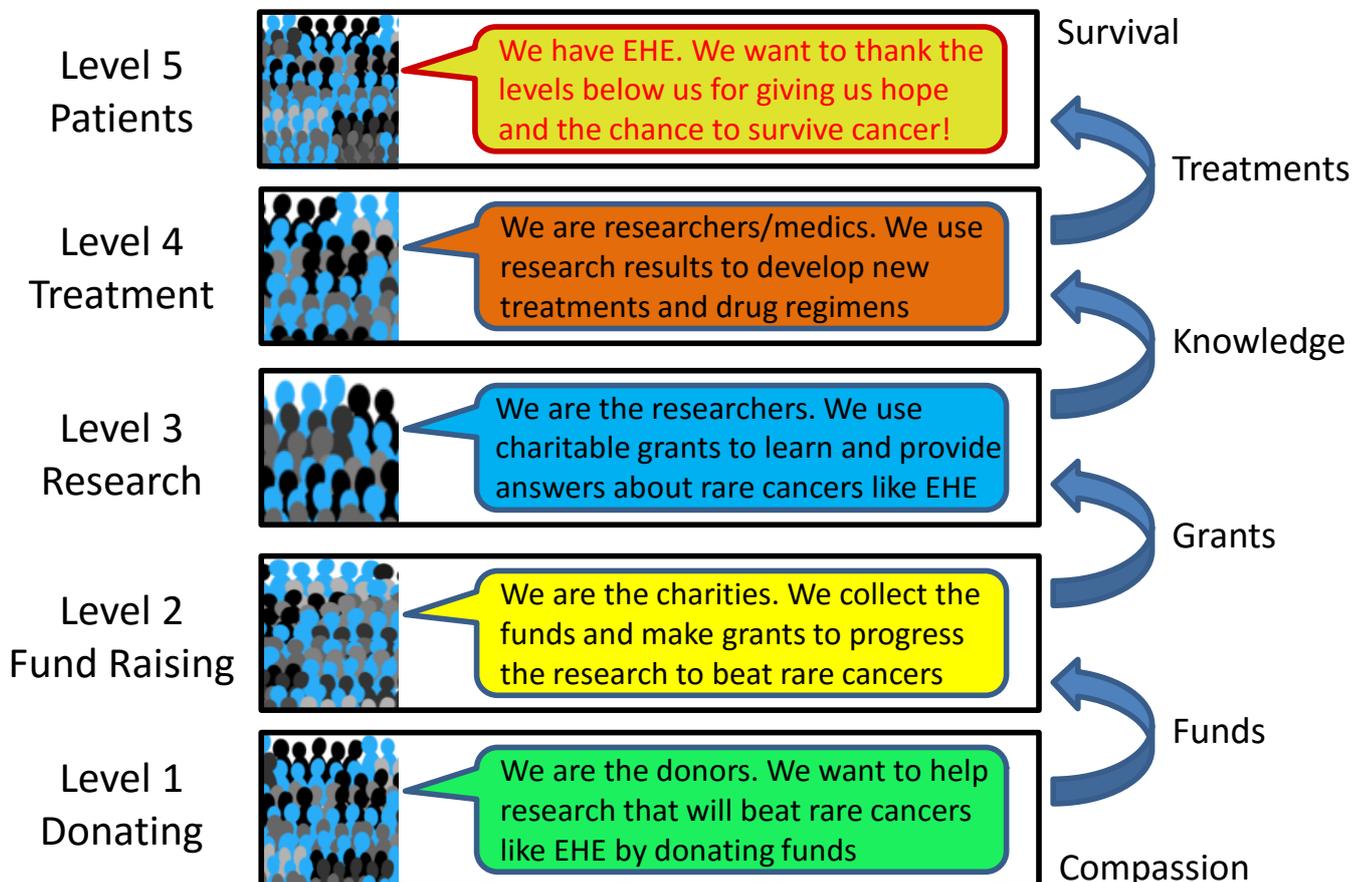


better understanding of the tissue neoplasms, especially

His laboratory is focused on understanding the pathogenesis of sarcomas with the major aim of developing targeted therapies. Dr. Rubin has published over 100 peer reviewed journal articles and is the author of numerous reviews and book chapters. He was a member of the working group that authored the WHO Classification of Tumours of Bone and Soft Tissue in 2002 and 2012. He is well known for his work on gastrointestinal stromal tumor (GIST) and other cancers such as melanoma that are driven by oncogenically-activated KIT receptor tyrosine kinase. His group also characterized a novel gene fusion in epithelioid hemangioendothelioma, a sarcoma with endothelial differentiation. This latest development has allowed them to initiate studies of EHE biology with the goal of developing targeted therapies to treat EHE.

The Funding/Research Process

Understanding and beating rare cancers such as EHE is a multi-layered process requiring energy and dedication from all involved and at every level. However, fundraising is at the base of the process. It is the foundation on which the other layers are built. It provides the funds we need to deliver on all our objectives and is therefore the lifeblood of our charity.



Our members are committed to supporting our fundraising programme in a whole number of different ways. The EHE Group of charities has launched its own worldwide fundraising initiatives, such as the **Road to 500**, the **100 Club**, and our worldwide **EHE Fund-Raising Month** programmes. Details of these programmes and a list of fundraising ideas can be seen on our file note **Fund Raising Ideas for EHE Rare Cancer Research**.



Our Targets

The only coordinated EHE research programme we are aware of is the international research being led by Dr Rubin from the Cleveland Clinic in the USA, as outlined above. We believe we are extremely lucky to have such a high-quality and collaborative research programme already in progress. Our research and funding objectives are focused on supporting this programme, and in particular to provide the additional research personnel to Dr Rubin's team, when needed, that will allow him to accelerate the four key components of the research and therefore the overall programme. Each new researcher requires in the order of US\$90,000 (£75,000) per annum. So our funding objectives are built in blocks of this amount.

We contributed to the first additional lab technician in Dr Rubin's team added in the second quarter of 2015. In 2016, we were also able to fund a new post-doctoral researcher who joined Dr Rubin's team towards the end of the year. We are now focused on raising funds for further full time researchers as well as funding collaborative work Dr Rubin is conducting with other institutions. Finally, we are continuing dialogue with different research facilities and commercial organisations, regarding other research streams that may be applicable to EHE.

Join the War on Cancer

You don't have to have EHE, or even know somebody with EHE, to join us and raise funds. It may be that you know somebody who has rare cancer, or perhaps you simple want to join and contribute to the overall 'war' on cancer. Whatever your reason for engaging and helping, your assistance and the funds you raise will be hugely appreciated. We will be genuinely grateful and encourage you to join us and help beat EHE.

