# THE CHAMPALIMAUD CENTRE FOR THE UNKNOWN

*Cutting-edge biomedical research and cancer treament facility on the banks of Lisbon's River Tejo*

CHRIS GRAEME | *Editor*

Built in just two years and inaugurated in 2010, the Champalimaud Centre for the Unknown is a state-of-the-art research facility which develops biomedical research activities in Portugal. Chris Graeme joined a guided tour of the centre with the British-Portuguese Chamber of Commerce to find out more.

Seen from the outside, the ultra-modern architecture of the Champlimaud Centre for the Unknown looks almost other worldly, set within a river-side landscape featuring the 16th century Torre de Belém. Designed by Goa-born architect Charles Correa, in what was to be his first project in Portugal, the architect explained at the centre's inauguration ceremony that "this project uses the highest levels of contemporary science and medicine to help people grappling with real problems. And to house these cutting-edge activities, we tried to create a piece of architecture as sculpture, architecture as beauty and beauty as therapy."

After a two hour tour of the facility, certainly the most impressive and futuristic one I have seen in my life, I for one felt sure that his aims had been realised and was impressed that a small country of just 10 million inhabitants on the periphery of Europe, so often in the world's press for the wrong reasons in recent years, was, in this calm riverside Lisbon setting, contributing to making small, steady, but hugely significant steps in the fight against certain cancers and neurological problems. Starting our tour in the Auditorium with a brief introduction to the mission and activities of the Champalimaud Centre for the Unknown, our guide, Maria João Villas-Boas, Public Relations and Executive Consultant of the Board of Directors, explains that the flags of the many nations in the foyer represent the 30 different nationalities working at the centre. Our host also points out the ramp between the two main buildings which represents going into the unknown.

## HOW THE CENTRE GOT STARTED

The history of the Champalimaud Foundation begins with the Portuguese entrepreneur, financier and industrialist, António de Sommer Champalimaud, who decreed that following his death part of his fortune should be used to create an international project in the field of biomedicine.

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In his will Champalimaud appointed the former Portuguese health minister, Leonor Beleza as President of the foundation who, together with the tycoon's friend and lawyer, Daniel Proença de Carvalho, set about creating the foundation's statutes, leadership and direction.

The board of directors then actively sought the advice of individuals and institutions in the science and medicine fields, creating a network of friends, contacts and advisors, as well as commissioning a study on national and international disease prevalence. Two fields were chosen in which the foundation's actions could make a difference: oncology and neuroscience. A third area – blindness prevention – research for which is not carried out at the centre now was also chosen because of its significance to the developing world.

## THE CHAMPALIMAUD CENTRE FOR THE UNKNOWN SITE

Built on derelict riverside land on the 65,000m² site of the former Fishing School at Pedrouços near Belém, the place for the complex seems aptly chosen – for it was within sight of the Torre de Belém where in the 16th century Portuguese explorers set off into the great unknown to discover new routes to new worlds overseas. Apt because the research and work carried out by scientists here also is a journey into the unknown to discover new knowledge that could eventually lead to treatments for certain cancers and neurological illnesses.

The site comprises three large areas – the main building houses the Champalimaud Clinical Centre's diagnostic and treatment facilities, an indoor garden, research laboratories and administrative services. "The building was designed to break down barriers by interlinking the different areas to promote discussion and collaboration between the scientists, clinicians and other professionals," explains Maria João Villa-Boas who also points out that once a year they go on retreats to places like the Alentejo where they can discuss research and problems in a relaxed and informal environment.

One of the most beautiful aspects of the entire Clinical Centre is the giant open-air tropical pergola covered garden in the middle of the structure. This is – like some of the areas we saw, including the main foyer and reception, the Darwin's Café, Auditorium, Exhibition Centre and even the Chapel with the most amazing organic sculpture representing Christ – open to the general public and it is here that patients undergoing cancer treatments can relax, stroll with friends and family members and even undergo chemotherapy sessions in special cabins in a more informal and less daunting environment.

In addition to this green oasis, member of the public can also enjoy green riverside areas along the river bank itself which are perfectly integrated into the surrounding area. There is a public footpath leading to this area which rises slowly – called the Ramp to the Unknown – revealing a view of the sea, the open air amphitheatre, and the Infinity Pool.

## BENCH TO THE BEDSIDE

Given the scientific nature of the centre, and the fact that patients receive treatment within the building, it comes as no surprise that for privacy and work reasons certain areas are off limits to the general public.

We did, however, get to see one neuroscience laboratory area with its myriad benches, files, glass dishes and flasks of every conceivable shape, size and colour, not to mention a rather amusing yellow shower in the lab itself for "decontamination purposes." Outside this lab it was noted that the walls in the corridor were partly made of white class which ingeniously double up as writing boards for the researchers and are well used judging from the frantic scribble of unintelligible equations on them – unintelligible to the likes of me that is!

In the pristinely clean white open-plan corridors are comfortable sofas where researchers, staff and clinicians can meet and chat in an exchange of information and ideas, which is the whole point of the concept and the envy of many other research facilities around the world.

It is also interesting to note that the centre breeds swarms of fruit flies because they are easy to genetically manipulate, as well as shoals of zebra fish because they have a rare ability to regenerate their fins, skin, heart and brain, while their spinal cords have an amazing capacity to heal without scarring – obvious neuroscientific applications here.

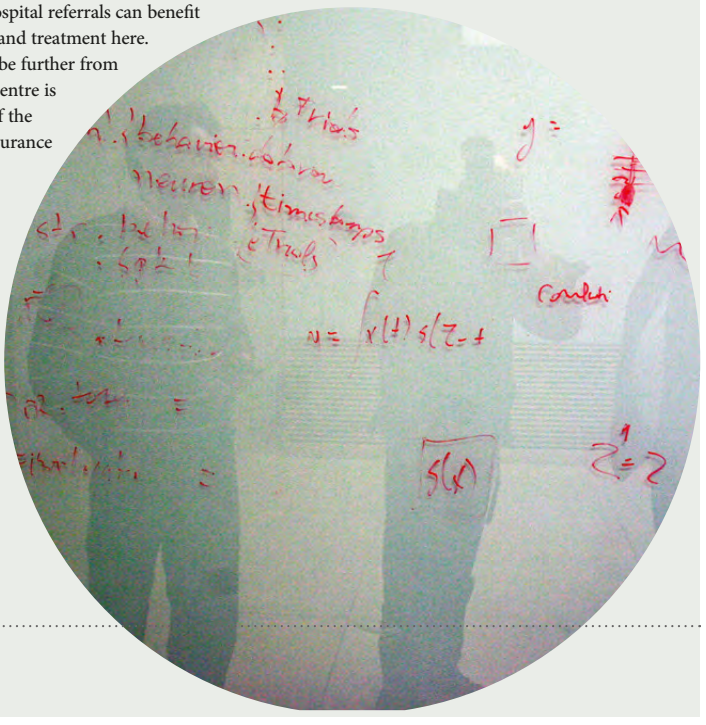
But the main beauty of the entire set up for me is the fact that scientific investigation in the laboratory is linked to the patient's bedside, since central to the foundation's main mission is the concept of translational research. Cancer research here is focused on achieving breakthroughs which can be brought into the clinic to improve the treatment and diagnosis of oncologic disease. Clinical staff offer patients at the centre the option of participating in studies or research programmes designed to create innovative new diagnostic and treatment solutions and a number of clinical trials are already underway.

For example, the Champalimaud Breast Unit has over 10 trials ongoing or in the process of approval. There are clinical trials also going in the radiotherapy department which has two customised calibrated equipment from the United States specially made for the centre.

There has been the incorrect assumption that only those with private insurance from private hospital referrals can benefit from the work and treatment here. Nothing could be further from the truth. The centre is open to most of the main health insurance policies and accepts referrals from state-run hospitals for patients of more modest financial means.

## EARLY DIAGNOSIS AND PREVENTION

One difficult and sensitive point in today's treatment of cancer is health screening for early detection which is vital in cancer but comes up against issues such as privacy and personal choice. The foundation has an innovative portfolio of patents that will enable the creation of new approaches to early cancer diagnosis and precise prediction of individual patient outcome. The technology made for the centre can provide single-dose therapy (one to three sessions) rather than 10 to 20 individual treatments, while particular emphasis is placed on research into the metastasis process. In oncologic disease it is not generally the primary tumour that kills the patient but the secondary tumours that follow. It was this concern that led in 2009 to the Champalimaud Metastasis Programme (CMP) in partnership with Princeton and Cornell universities. Above all Maria João Villas- Boas stresses that "we cannot (always) say that we can cure people of cancer. We are trying to turn cancer into a chronic, manageable disease."



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## BLINDNESS PREVENTION

Despite research in this area not being carried out at the centre, it was in this field that the foundation was to the launch its first direct action in 2006. Awarded on an annual basis, the €1,000,000 António Champalimaud Vision Award is the largest prize in the field and supports the fight against blindness from two sides: laboratory based research and blindness prevention work in the developing world and funds small teams of specialists with mobile operating equipment who go into remote areas in places like Nepal and treat problems such as cataracts which so often cause unnecessary blindness in developing countries. In 2008 the foundation opened its first vision centre: C-Tracer – the Champalimaud Centre for Translational Eye Research which promotes advanced research in the field of ophthalmology at three centres in India, Portugal and Brazil.

## CHAMPALIMAUD NEUROSCIENCE PROGRAMME (CNP)

Starting in 2007, the foundation launched the Champalimaud Neuroscience Programme (CNP) which was initially hosted at Lisbon's Gulbenkian Institute of Science. With the goal of unravelling the neural basis of behaviour and studying the human brain, the Neuroscience Programme (CNP) seeks to forge new links between nervous system function and behaviour, not by a particular field within neuroscience, but by the full intellectual scope of the scientists on the programme through maximising cooperation, being a hub for scientific interaction, sharing knowledge, and nurturing new scientific approaches.

## AN INTERNATIONAL SUCCESS STORY IN EIGHT YEARS THAT KEEPS GROWING

Now in its eighth year, the Champalimaud Centre for the Unknown today has 15 research groups and employs 150 professionals – researchers, clinicians and scientists. It has won a fistful of awards and research grants totalling €20 million since its inception including €8 million in the past two years, a 2 million consolidation grant from the European Research Council in 2012 and a recently announced €2.5 million grant. In all areas in which it operates, the foundation is today recognised worldwide as a leader and promoter of knowledge and research. ■