What are the overarching aims of the Anticancer Fund (ACF)?

LM: ACF is committed to expanding the range of treatment options available to patients as quickly as possible. This means supporting innovative research in possible breakthrough areas, such as drug repurposing, immunotherapy and non-pharmaceutical interventions. We base our assessments of research on patient benefit rather than on phase of trial or commercial consideration. In addition, ACF focuses on the barriers to clinical implementation for non-mainstream treatments when the results are positive. We feel strongly that society cannot afford to leave any potential source for new therapies untapped. Our ultimate aim, therefore, is to take effective non-mainstream treatments into the mainstream.

How does ACF stand out from other not-for-profit oncology organisations?

GB: ACF differs from other not-for-profit organisations in a number of ways. One is our commitment to patient outcomes; the research and trials that we support are focused on outcomes that are of direct interest to patients. We also aim at added therapeutic value, meaning that the treatment we investigate should be substantially better than the best currently available treatment. Our commitment to patients goes beyond research – we also have a high level of public engagement. This includes publishing science-based information in multiple languages on our website and in downloadable guides, and working to expose fraudsters who prey on vulnerable people. It also extends to providing direct support to patients who are looking for new treatment options or appropriate clinical trials – this is personalised information specific to their case rather than generic information. This mix of activity marks ACF as a unique organisation in the oncology world.

With cancer prevalence on the rise, there is growing interest in the repurposing of drugs for anticancer agents. What are the advantages of this alternative approach?

PP: There are a number of benefits to repurposing that makes it an attractive approach to complement de novo drug development. The first and most obvious is that we already have significant amounts of data on these repurposed drugs – pharmacokinetics, toxicity, dosing, etc. This means that we may be able to skip pre-phase I development and testing, as well as phase I trials – potentially shaving a number of years off the development cycle. Second, many of these older drugs have multiple mechanisms of action, turning them into multi-targeted agents with a range of activities against cancer-relevant pathways. Third, because many of these agents are off-patent, there is a cost benefit; new cancer drugs are a significant burden on health systems in both developed and developing economies.

Could you offer an insight into the challenges faced in the political and public arena with regard to repurposing drugs? How does ACF strive to tackle these issues?

PP: Many of the main candidates for the repurposing of non-cancer drugs in oncology are generic drugs. As these are off-patent, the original licence holders often have little interest in them. Re-licensing for a new cancer indication is an important step that signals to clinicians that the drug has shown evidence of efficacy and has been approved for use. But the process is costly, and if the original licence holder is not interested, they will not pay those costs or take part in the process. ACF has been in discussion with different authorities in an attempt to clarify these issues and seek a resolution. We have also been involved in supporting the Off-patent Drugs Bill in the UK, which seeks a change in legislation to directly address this issue.

Do you think current efforts to repurpose drugs for anticancer agents will transform the treatment landscape?

PP: It will only be a matter of time before there is convincing evidence that a repurposed drug makes a major impact on overall survival or another significant outcome. If there is sufficient public and scientific pressure then the licensing issues will have to be resolved. Once that happens, we can follow the process through to implementation and, ultimately, have both a positive change for the patient group affected and a live template that can be applied to ensure that it is not an isolated case.
The Anticancer Fund has teamed up with GlobalCures to explore the potential anticancer properties of existing non-cancer drugs, with the aim of developing new, effective and affordable ways to treat cancer.

CANCER RESEARCH IS in the midst of a productivity crisis. Although more money is being invested in the search for new cures than ever before, fewer and fewer novel treatments are being approved. Indeed, between 2003 and 2011, just 6.7 per cent of cancer drugs that began phase I clinical trials succeeded in achieving US Food and Drug Administration (FDA) approval. The problem is further compounded by the fact that, even when a candidate therapy is successful, its journey from bench to bedside is a lengthy one: the mean development time for novel antineoplastic drugs is currently calculated at 8.3 years.

Unfortunately, this slowdown in productivity is taking place at a time when cancer incidence is on the rise globally, and in upcoming years cancer will represent an increasing economic burden on health systems in both the developing and developed world. As such, novel cancer treatment strategies, which are both effective and affordable, are urgently needed.

REPURPOSING PROMISE
The Anticancer Fund (ACF), a private not-for-profit foundation based in Belgium, has two primary aims. The first is to provide science-based, patient-orientated information on a broad spectrum of cancer therapies (both mainstream and non-mainstream) to patients and healthcare professionals. The second is to promote and fund research on novel therapies that, while showing promise, have little commercial value and are therefore unlikely to receive financial support from pharmaceutical companies for clinical trials. “We believe that all non-mainstream interventions need to be tested for efficacy in well-run, well-designed and convincing clinical trials,” explains Dr Lydie Meheus, Managing Director of ACF.

As such, ACF supports a wide range of innovative research aimed at identifying new cancer treatments, from personalised cellular immunotherapy to mindfulness meditation. One area in which ACF is investing considerable effort at present is drug repurposing – that is, taking drugs that have previously been approved for uses other than cancer and exploring their anticancer potential. The ACF researchers envision these repurposed drugs being employed either in combination treatments that attack the cancer from multiple angles, or as complementary treatments that improve the efficacy of existing therapies.

Drug repurposing holds promise for a number of reasons: it speeds up the development cycle, provides researchers and clinicians with a wealth of pre-existing data, and frequently involves low-cost, generic drugs. However, there are a number of roadblocks that prevent repurposed drugs from reaching the clinic relating to intellectual property rights, patent issues and a lack of financial incentives to encourage commercial investment.

THE ReDO PROJECT
In an effort to overcome these limitations, ACF has joined forces with GlobalCures, a US-based not-for-profit medical research organisation that specialises in drug repurposing, to initiate the Repurposing Drugs in Oncology (ReDO) project.
The researchers have so far identified over 70 drug candidates that could potentially be repurposed as cancer treatments.

The ReDO project represents a shift in the current cancer research paradigm, moving away from the development of targeted therapies towards a more multifaceted approach. "ACF foresees a time when cancer treatment protocols routinely include additional agents, many of them repurposed, which improve the effectiveness of existing treatments, significantly reduce risks of metastatic spread and, in some cases, even become significant treatments in their own right," predicts Pantziarka. If he and his colleagues are correct, then the results are likely to have a significant positive impact, both on public health and overburdened health systems across the world.