# Geoffrey Guy, Chairman, GW Pharma

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*Dr. Geoffrey Guy, chairman and founder of cannabinoid medicine pioneer, GW Pharma, outlines the potential benefits that Brexit could bring to the UKâ??s life sciences industry and the evolution of his company.*

**Unlike many of your peers, you are very optimistic about Brexit. What opportunities do you believe Brexit will create for Britain and the life sciences industry in the UK?**

Having dealt with regulators throughout Europe for 30 years, I have noticed that the UK has lost, through its membership of the European Union (EU), the ability to be pragmatic and respond to changing circumstances. It is incredibly important that we must, as the Napoleonic maxim goes, â??manoeuvre according to circumstance.â?•

Through being part of the EU, the UK with all its capabilities, is tied down by Brussels. As long as it can break free, the UK faces a couple of decades of unbridled prosperity. As a nation the UK is very industrious and very pragmatic; we can deal with change far better than most of the large European countries who are restricted by their institutional approach.

The UK had provided the most liberal research environment in Europe for decades, until it adopted fully the EU directives in the early 2000s. Before adopting the directives, the National Health Service (NHS) had acted as the worldâ??s largest clinical trials unit, in which a considerable amount of research was being done and pharmaceutical products were being developed at a faster rate than anywhere else in the world.

However, this all slowed down considerably as the process of directives was introduced. Around 30 years ago we represented 2.5 percent of the worldâ??s market but carried out 12 percent of research and development. That has changed and a major reason behind that slowing down is that the pace is set by the lowest common denominator of 28 separate countries.

Therefore, there is an opportunity and a necessity for the country to become a leader in biotechnology, biopharmaceuticals, healthcare and the life sciences industries. Iâ??d like to see the UK return to the rapid transition from laboratories to humans, a process which we are very good at, having led Europe in that regard for many years.

The UK can offer some of the worldâ??s best universities, access to standardised data from the NHS, a regulator that understands the drug development process and a government that through its *Life Sciences Industrial Strategy*, recognises that biotechnology and pharmaceuticals play a significant role in developing the British economy. In return, if these companies gain assistance from the UK as a global biotech incubator and receive early approval for their drugs, they must guarantee the NHS will receive these drugs at the earliest stage possible and for the best price available.

Our corporate leaders need to embrace Brexit and realise the opportunities that Brexit allows. While we may lose one thing we will certainly gain something else. That was my approach after Brexit; I divested from any company whose chief executives or chairman had said that â??Brexit will be awful.â?•

Those companies that see the opportunities in Brexit are the ones to invest in. Nevertheless, I suspect the majority of the British population will not feel the effects of Brexit. There are academics and intellectuals who have become part of European networks through funding who are worried. However, we have always raised our own money and do our own research.

Overall, I think this country is best suited to being governed by the rules and regulations of the UK; not overarching rules and regulations that have been designed for countries as far apart as the UK and Slovakia. The context of 1000 years of solidity and a consistent national identity allows us to be particularly flexible and entrepreneurial in the UK.

The reserved but pragmatic British infrastructure provides a background in which entrepreneurs are able to take risks without feeling that everything is lost if the process doesnâ??t go as planned.

**You founded GW Pharmaceuticals back in 1998, so celebrating 20 years of existence this year! Looking back, what would you define as the three most significant moments in the development of the company that have enabled it to reach a world leading position in plant-derived cannabinoid therapeutics?**

I could give you the response Chairman Mao gave when asked about the French Revolution; â??Itâ??s too early to tell.â?•! However, the first really significant moment for GW Pharmaceuticals was the granting of the license to grow cannabis in 1998. The second important moment was the approval of Sativex in the UK and Europe. Third of all was the initiation of the Epidiolex program, brought together much of the work that we had done on the beneficial properties of Cannabidiol

(CBD).

At a cannabis conference in New York in 1998, John Morgan one of the premier pharmacologists working in the area, stated that CBD was an inert component of cannabis arguing that the pharmacology of cannabis could be explained entirely through Tetrahydrocannabinol (THC). However, medicinal cannabis throughout the centuries had been a CBD productâ?¦ So we introduced the notion that CBD was a far more interesting molecule. Previously the entire field had been focused on THC. We focused on the composition of historical cannabis-based medicines.

These had been described particularly accurately through a series of publications from the 19th and 20th centuries but also documented less accurately, yet consistently over the previous two to three thousand years. Those medicines comprised 50 percent CBD and 50 percent THC; that is the reason that we developed Sativex.

**Has GW Pharmaceuticals been affected by the stigma surrounding cannabis?**

Within months of starting GW Pharmaceuticals, most people had become aware of the role of cannabis in treating Multiple Sclerosis (MS). Stigma was not a major issue in the UK. However, it is dependent on culture; there is significantly more stigma in Canada, the US and France whilst Spain is incredibly tolerant.

In the case of Britain, the government recognised that there was a risk of the recreational lobby using the medical approach to achieve their aims. However there was also a recognition of the medicinal uses of cannabis, which is evident when considering the long history of cannabis use for medicinal purposes.

As such, they took the perspective that it was best that pharmaceutical companies developed cannabis medicinally thus separating the medicinal and recreational aspects of the drug. Due to my unique background in the three areas of controlled substances, drug delivery and plant-based medicines, I was in a unique position to develop the medicinal aspects of cannabis.

Thus in 1996 there was a statement in the House of Lords to that effect, essentially stating that in the event that cannabis-based medicines are approved by regulators, there would be a swift move to reschedule the drug appropriately. Within a few months of announcing our program that distinction was made and understood quite clearly. There was an entirely pragmatic response.

In terms of my reputation, as a pharmaceutical physician that develops prescription medicines, there were no negative repercussions. It is important to consider that Iâ??d spent much of my career developing narcotic analgesics, having spent 19 years working in areas relating to the development of controlled schedule one substances. Significantly we are a pharmaceutical company that develops medicines and that has been understood quite clearly.

**In which direction do you see GW Pharmaceuticals going over the next five to ten years?**

We intend to follow those signals that are indicative of cannabinoid benefit in regards to homoeostasis, compensation and decompensation. We will probably focus on children for a long time; there will then probably be a leap towards much older people. Cannabinoids are especially orientated towards neural development. Cannabinoids create, guide, join and maintain neural development in the foetus.

In the adult brain they further enhance plasticity and connectivity. They repair, replace and regenerate, particularly in neural tissue but also in cardiac tissue as well. Cannabinoids are cytoprotective as well as being neuroprotective. We have become specialists in regards to brain development in children and perturbations in brain development, certainly in relation to epilepsy and increasingly in regards to autism, both of which I consider to be essentially the same condition. While these conditions may manifest differently there is an underlying commonality.

Cannabinoids work at that neuro-homoeostatic level. As such we see an opportunity to approach these conditions at that level, with this understanding in mind. Considering the number of conditions in the developing brain, that despite their unique presentations, share phenotypes, we are building from a particularly strong platform.

**How did you fund your research?**

Initially Dr Brian Whittle [co-founder of GW Pharmaceuticals â?? Ed.] and I, funded it ourselves. We later raised money through private investment rounds in the UK. From the private rounds we took GW Pharmaceuticals on to the Alternative Investment Market (AIM) in 2001.

We then put the company on NASDAQ five years ago. However initially there was massive enthusiasm for what GW Pharmaceuticals was doing. While people were wary of cannabis, they became very aware that it was treating patients with severe conditions, where other medicines had either failed or had introduced serious side effects and developmental issues, particularly in children.

In the past a lot of funding had been raised through licensing. We currently do not license. Nevertheless, Iâ??ve licensed approximately 40 products to around 130 drug companies, starting in 1987. Sativex is licensed in a large number of territories. However, this excludes the US, Japan and China for example.

The strategy for Epidiolex was always to market it ourselves. The patient population is covered by a relatively compact group of highly specialised epileptologists and neurologists, so we were perfectly able to bring Epidiolex to market ourselves. However various structures need to be in place, which we are building at the moment, in order to put a sales force forwards.

**A few words to conclude?**

It is important to allow the UK to manage Brexit effectively. If the leaders, visionaries and entrepreneurs are allowed the freedom to develop effective solutions, then the strength of not only the financial services industry but also the UKâ??s strength as a global research resource will be evident.

In relation to GW Pharmaceuticals in particular, our cannabinoid science will lead us to some especially interesting places. We are particularly focused on neural plasticity. Given good neural plasticity, the brain is able to work around most issues relatively effectively.

Many of the medicines available actually reduce neural plasticity thus tackling the symptom but reducing the brains effectiveness at working around the issue. We want to be able to remove the symptom while increasing neural plasticity. This is going to be especially relevant considering the sedentary lifestyles of many children.

The lack of exercise in particular means we will probably see significantly more neuropsychiatric disorders in adolescents over the next 10 years. As such, I am interested in developing effective pharmaceuticals, particularly associated with the enhancements and modulation of neural plasticity.

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