

# R&D TAX RELIEF: the appliance of science

Claiming R&D tax relief isn't exactly rocket science is it? Sorry to disappoint you, but yes it is actually.

Research and Development. The term conjures up images of people in white coats in laboratories, looking down microscopes.

NOW, WHILST YOU DON'T IN FACT NEED A LABORATORY TO CARRY OUT R&D, IT'S STILL TRUE THAT TO UNDERSTAND THE TECHNOLOGICAL ADVANCES THAT OCCUR AS A PRODUCT OF R&D, YOU NEED TO KNOW THE SCIENCE BEHIND THEM.

This, in a nutshell, is why a claim for R&D tax relief isn't just a case of pulling together the financials. No, to ensure the best possible claim is made, a scientific approach is an absolute must, as this typical case study demonstrates.

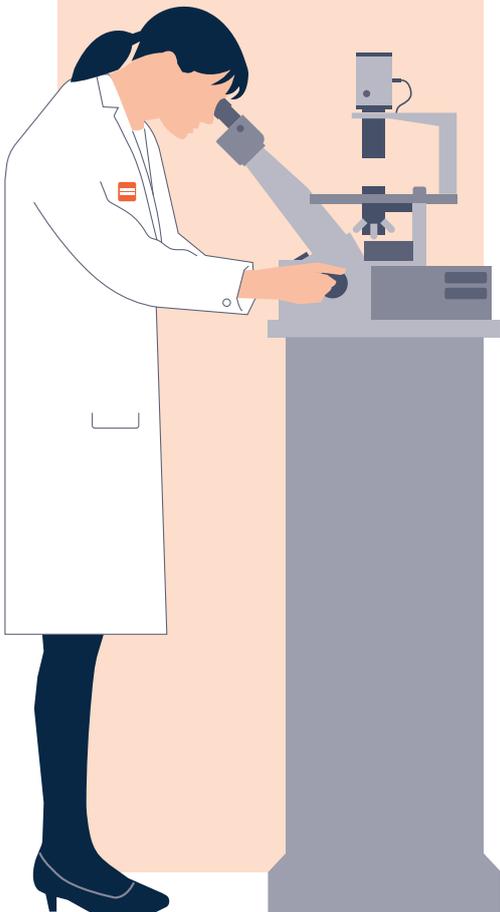
## Pesky Parasites Ltd wants to make some improvements...

Pesky Parasites Ltd is a company that carries out routine testing for farmers to identify parasites in the livestock on their farms, enabling them to make decisions on control and treatment methods. A core part of the business is identifying the different species of parasite present in samples, using polymerase chain reaction (PCR).

## PCR – what you need to know

Ok, let's take time out for a crash course on the methodology used, since you can't make any judgements on eligibility or otherwise without it.

PCR is a standard laboratory test, developed over 30 years ago, which is used in laboratories all over the world to 'amplify' DNA to be used in applications such as diagnostics, species identification and DNA fingerprinting.





*The process went incredibly smoothly from start to finish. We were impressed by the team's quick response time, and how they minimised the time and effort for us throughout the process.*

*The Analysts showed remarkable technical knowledge and the Jumpstart customer service team kept us on track throughout.*

| MARIE VERTIGAN  
| FINANCIAL CONTROLLER  
| QSPINE LTD



The basic process involves 'opening' up a strand of DNA by heating it, then using a unique template made purely to match a specific region of DNA, known as a primer, to build new strands of DNA. This means that one tiny strand of DNA turns into thousands of strands over a number of heating and cooling cycles, in essence 'amplifying' it, so that there's enough for use in experiments or diagnoses. There can be many variables on the method, depending on optimum temperatures, cycles and ingredient concentrations.

## Truly groundbreaking or just going over old ground?

Back to Pesky Parasites Ltd. The company had been routinely testing for three different species of parasite on farms, using PCR analysis, for several years and their protocols were well established. The veterinarian for one of their clients suggested that they begin to look for another related species of parasite that had become increasingly common. The recipe for the primer required for the identification of this parasite was already available in the public domain.

However, Pesky Parasites Ltd needed to establish the most suitable parameters for the PCR reaction using this primer that was new to them, to ensure that it was working in the optimum conditions. This meant using trial and error until they had found the best temperature to run the cycles, how many cycles to run and the concentrations of the ingredients in the mixture for the reaction.

## My brain's hurting, so it must be R&D

A common mistake when preparing an R&D tax relief claim is to make the assumption that, because something sounds complicated, it automatically counts as eligible R&D. Often, processes that sound very difficult to a lay person are in fact routine to a competent professional.

Whilst the development of the protocol for the identification of a parasite species not previously included in the company's testing procedure sounds like a difficult process, it is in fact routine work for a competent professional and took Pesky Parasites Ltd only a month to solve the unknowns through a series of trial and error experiments involving limited parameters capable of producing a successful result. The experimentation purely served the purpose of finding the best result.



The use of trial and error in resolving the issues in this project demonstrates that the solutions were readily deducible using existing knowledge and the routine knowledge of their competent professionals.

Knowing that simply solving a technical unknown isn't eligible for R&D tax relief in HMRC's books, how do you think this first project would fare in a claim? That's right – the combination of routine work and readily deducible knowledge would see it winging its way into the big green file marked 'Recycling'.

### The real McCoy?

Now that you know a little about the science involved and how HMRC thinks, how do you reckon this second, not dissimilar project would fare?

Effective though Pesky Parasites Ltd's established method was, it also required each sample to be run four times – one for each primer – to identify whether or not all of the species are present. With each PCR run taking four hours, this is a slow and cumbersome process. Pesky Parasites Ltd therefore decided to investigate the possibility of using a form of PCR, known as multiplex, which involves adding four primers (one for each species) into the PCR mix. Instead of four PCR runs per farm, they would only need to do one, massively speeding up their testing time.

This isn't an established method for diagnostic testing and the company had many problems to overcome. Correct identification of each parasite species was essential, so the results from the tests needed to be trustworthy. As demonstrated by the first of Pesky Parasites Ltd's projects, developing a protocol for PCR reaction parameters is a reasonably simple job when only one primer is involved. However, adding four into the mix and ensuring that each works to its optimum ability is a complex task.

Nor was this the only problem the company encountered. How would the primers interact with each other? Could erroneous interactions lead to false positives or false negatives in the results? Could similarities in the DNA of two of the parasite species lead to them becoming indistinguishable from each other in the test results? None of these problems were easily resolved without going back to the drawing board to look at possible new solutions and conducting numerous trials and experiments. a test that was suitably accurate for use on client samples.



*Having previously had to prepare the claims ourselves, we knew how much time and effort the process would require, so it was a real bonus to have Jumpstart on board to help.*

*Their understanding of the technical aspects of our business was second to none and they were able to uncover a lot more eligibility from our projects that we ever thought we could.*

*If you need an R&D tax relief specialist who can speak with both your scientific staff and HMRC, then we recommend you speak to Jumpstart..*

**PAUL SMITH**  
FINANCIAL DIRECTOR  
LAB M LTD



With no guarantee of success in resolving any of these problems, the project took over a year to complete, from initial trials to developing a test that was suitably accurate for use on client samples.

## Meeting the eligibility criteria

Whilst the development of a new species identification protocol may sound very similar to the first of Pesky Parasites Ltd's projects, this second project ticks many of the boxes required by HMRC for eligibility for R&D tax relief.

For starters, this second project is advancing science and technology, not just for the company, but overall. By speeding up the diagnostic process, the company is indeed helping its own business needs but more importantly, in HMRC's eyes, this technology is advancing the scientific baseline as described in the CIRDS guidelines, which, incidentally, run to several hundred pages.

Looking at the problems encountered by Pesky Parasites Ltd as it worked on developing a multiplex PCR protocol, we can see that none of the answers were readily deducible. Simple trial and error and existing knowledge wasn't going to cut it, which leads us to conclude that what they were facing were technical uncertainties, as opposed to mere unknowns.

Coming back to HMRC's definition, the solving of technical uncertainties DOES make a project eligible for R&D tax relief. Good news for Pesky Parasites Ltd (though not such good news for the parasites)!

## Scientific knowledge is key

It's clear that Pesky Parasites Ltd is carrying out research and development; understanding which projects are eligible for R&D tax relief is the tricky bit. HMRC's CIRDS guidelines define R&D for tax purposes as "a project that seeks to achieve an advance in science or technology".

If you don't have an understanding of science, how can you possibly hope to appreciate what constitutes an advance?



*We are a very technically specialised business and we found Jumpstart's knowledge of the technicalities of our industry sector flabbergasting!*

*This meant they were able to capture more eligible costs than we, or our accountant, would ever have.*

| PAUL RICHARDSON  
| OPERATIONS DIRECTOR  
| BIOLINK LTD



And it's not enough to have a grasp on the work of just one company; the advance needs to be made over the whole field of science. An understanding of the general technology behind a claim is therefore essential if you're to be able to make an informed judgement.

**This example shows how important scientific knowledge is when making an R&D tax relief claim.** Only with this knowledge can you truly understand where a project is advancing science as a whole, where it is solving uncertainties or unknowns and where readily deductible knowledge just isn't enough.

**GET IT RIGHT AND YOU HAVE THE BEGINNINGS OF A POTENTIALLY SUCCESSFUL CLAIM. GET IT WRONG, AS A LOT OF PEOPLE DO, AND YOU COULD END UP WITH AN HMRC INVESTIGATION ON YOUR HANDS.**

So the next time you're putting together an R&D tax relief claim, stop and ask yourself whether a helping hand from an expert in

For a free R&D tax credit consultation and analysis of the potential returns you might expect from your projects, contact the Jumpstart team

There is no substitute for experience and expertise. Experience gained through years of daily involvement in putting together thousands of successful R&D tax claims. Expertise built through a detailed programme of training and study, maintained and regularly enhanced.

**JUMPSTART YOUR R&D TAX CLAIM TODAY.**

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