



## LAM ACTION

Supporting women with Lymphangioleiomyomatosis



# Why is Scientific Research so expensive?

Research in a laboratory is an expensive business, with high costs driven by the requirement for specialised equipment and reagents. Below is an outline of the direct costs involved in bench research, and the example of costs associated with a single experiment.

### Personnel

The main costs associated with research are personnel costs.

Each project requires at least one experienced researcher known as a postdoctoral research fellow, or 'postdoc'. The postdoc will design and perform experiments, analyse data, and prepare publications and presentations.

PhD students also perform research, under supervision, as they complete the work for their thesis.

### Personnel costs (per annum)



*Postdoctoral Research Fellow*



*PhD student*

### Materials

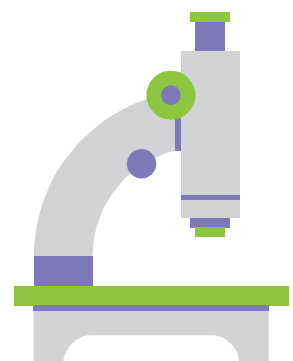
The materials used in our research – which we call consumables – are expensive. We need single-use sterile plastics for tissue culture, specialised medium to grow our cells, drugs and antibodies which cost hundreds of pounds for a fraction of a millilitre. We even have to buy extra pure water for our experiments!

Research grants normally include at least **£13,000 per annum** for consumables.

### Equipment

Even the simplest biological research equipment tends to cost hundreds or thousands of pounds. Something as basic as a centrifuge can cost £2000, and you cannot do any molecular biology without one. A single microscope objective lens can cost £700.

Just keeping some of our larger pieces of equipment involves running costs of thousands of pounds a year in service contracts.



## How much does this experiment cost?

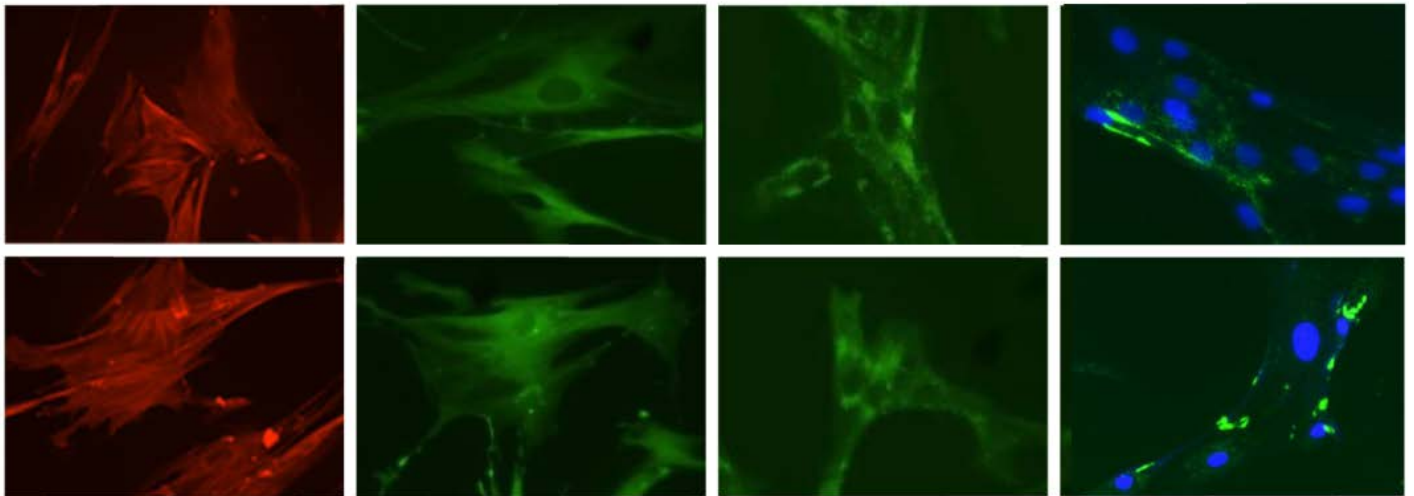
This is a very simple experiment where we investigate the expression of some proteins in our cells to help us decide what type of cells they are. We use specific antibodies to detect the proteins.

SM-actin

S100A4

FSP

TE-7



### Cell Culture Materials

This includes special medium to grow the cells, and sterile plastic ware (flasks and dishes): **£50 for one experiment.**

### Antibodies

We need 6 of these, costing around £200 each: **£1200** (though this will be enough antibody for several experiments!)

### Personnel Costs

To perform the experiment, image the cells and analyse the data: around **£100.**

### General Lab Consumables

Things like pipette tips and buffer solutions that we use in all of our experiments: about **£50 for one experiment.**

**Total cost = around £1,400**

