



20 years of research

Working to improve the diagnosis, treatment and care of people affected by lung disease

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BRITISH LUNG FOUNDATION

20th birthday



About the British Lung Foundation

One person in seven in the UK is affected by a lung disease.

Whether it's mild asthma or lung cancer, the British Lung Foundation is here for every one of them.

- We support people affected by lung disease through the individual challenges they will face. Support is the focus of many of our activities, including Breathe Easy, our nationwide support network and Baby Breathe Easy, our parent support groups.
- We help people to understand their condition. We do this by providing comprehensive and clear information on paper, on the web and on the telephone.
- And we work for positive change in lung health. We do this by campaigning, raising awareness and funding world-class research.

I am delighted to welcome this publication, celebrating the 20th birthday of the British Lung Foundation. It seems only yesterday that a group of us met at the Royal Society of Medicine to work out how we might generate funds for research into the scientific basis and clinical treatment of respiratory diseases, which were so sorely neglected. Lung disorders account for some 20 per cent of deaths in the UK¹, and a huge burden of chronic disease in the community.

Despite this, funding both for research and for patient support was meagre, particularly when compared with heart disease, cancer and other fields of medicine. Established medical research charities, particularly in heart and cancer, provided excellent and successful models and on these we based the infant British Lung Foundation. Since those early days the Foundation has gone from strength to strength and now raises over £Six million per year. Moreover the BLF has played a major role in making more widely known the importance of lung disorders, and of bringing public and political pressure to improve both the environment in which we live, and the services provided to respiratory patients.

This document and the 20th birthday celebrations serve several functions. First they highlight the continuing, and ever increasing, burden of respiratory disease throughout the UK. Testimony from Breathe Easy members illustrates how devastating pulmonary disability can be, and emphasises to politicians and health managers how important it is to provide effective care, and also practical support for breathless patients. Second the BLF makes the importance of respiratory conditions more widely known and provides knowledge to improve the environment, thus helping prevent the onset of lung diseases. Finally this anniversary allows us to recognise the huge contribution that research has made to understanding the scientific basis, causes, and effective treatments of respiratory disorders.

It is heartening to see in this document how many UK based scientists have made seminal advances in academic and clinical respiratory medicine over the past 20 years, playing a leading world role in the discovery of mechanisms and treatments. Commentary from international leaders highlight advances within each of the decades from 1950 onwards, illustrating the strength and depth of this achievement. The recent death of Sir Richard Doll, the clinical epidemiologist who first proved definitely that cigarette smoking causes lung cancer, sadly prevented him from making his contribution to the document, but this is an opportunity for us to honour his huge contribution to the prevention of lung disease.

So now the British Lung Foundation looks forward to the future with the vigour of a mature organisation. The commitment of patients and academics who have strived so hard to ensure its success in its first 20 years is matched by the enthusiasm of the staff and supporters of the BLF today. Its goal remains to support lung patients, both by understanding their needs on a daily basis, and by sponsoring research to prevent and treat their disorders. The achievements of those involved in this great enterprise speak for themselves. I know we can look forward to the next 20 years with equal confidence.

Professor Malcolm Green

Founder of the British Lung Foundation

¹ *The Burden of Lung Disease*, British Thoracic Society (2001), p. 9.

The Burden of Lung Disease

There are over 40 illnesses that constitute 'lung disease'. These include: asthma, tuberculosis, Chronic Obstructive Pulmonary Disease (COPD), cystic fibrosis, lung cancer, sleep apnoea, fibrosing alveolitis, pneumonia and many more. Lung conditions are the leading cause of death worldwide and affect a staggering 8 million people in the UK alone, they affect people of all ages and are the most common cause of long term illness among children.

Lung conditions can last a lifetime and have devastating effects on quality of life.

According to the 'European White Book' on the burden of lung disease published by the European Respiratory Society in 2004, the situation in the UK is much worse than in the other countries of the European Union.

This report reveals that:

- The death rate from respiratory disease in the UK (105 per 100,000 people) is twice the EU average²
- Lung diseases (including lung cancer) kill more people in the UK than coronary heart disease³
- More people in the UK (5.1 million) live with asthma than any other European country⁴
- More people die from Pneumonia per year in the UK than any other European country⁵

Moreover, lung disease has an even wider impact on our communities, with huge economic and social costs as outlined in the ERS report:

- Respiratory disease costs the NHS more than any other disease area.⁶
- In the year 2000, 28 million working days were lost due to respiratory related illness.

These figures speak for themselves in describing the massive and far-reaching effects that lung diseases have on so many people's lives.

² R Loddenkemper, G.J. Gibson & Y Sibille, "The burden of lung disease in Europe: data from the first European White Book", *Breathe – Continuing Medical Education for Respiratory Professionals* (2004), vol.1, No 1, p. 7. European Respiratory Society (2004), p. 7.

³ BBC News online, "UK lung deaths 'twice EU average'", Tuesday, 27 April, 2004, quoting the European Respiratory Society's European Lung White Book.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

⁷ BBC News online, "UK lung deaths 'twice EU average'", Tuesday, 27 April, 2004, quoting Department of Social Security, 2000.

The British Lung Foundation

With the burden of lung disease in mind, the British Lung Foundation was set up in 1985 to help people with lung disease. One of our main aims was to fund world-class medical research into lung disease in order to help scientists to produce new ways to prevent, treat and cure lung disease and to improve the quality of life for people who live with a lung condition. To this end, the British Lung Foundation is the only UK-based charity that funds medical research into all forms of lung disease.

What is research and why does the BLF fund it?

The best way to tackle a problem is to fully understand it. This is absolutely true in respiratory disease. Medical research offers us an excellent tool for understanding the causes of a disease, how it progresses and what it does inside our bodies. These are the building-blocks upon which new treatment strategies and cures are developed.

In this way, medical research makes a direct contribution to the prevention and treatment of a disease and can also lead to dramatic increases in the quality of life for patients. In other words, medical research is vital. The British Lung Foundation funds many different types of research, from 'clinical' research that involves patients, to 'basic' research that is usually carried out in a laboratory and does not involve patients. Not every piece of research that we fund leads to a breakthrough that will have immediate benefits for patients, but every single research project we fund is a piece in the complex jigsaw puzzle that potentially leads us to a world without lung disease. Even research that proves the researcher wrong is

important, as it helps the research community to know which avenues are worth pursuing and which are dead-ends.

In our first 20 years, the British Lung Foundation has spent over £17 million on supporting the respiratory research community, awarding over 260 separate research grants all over the UK. These grants have tackled diverse areas of lung disease from COPD to pneumonia, from lung cancer to sarcoidosis. This publication provides an overview of the major achievements of BLF funded medical research and contains an index of every grant awarded in our first 20 years.

What is the current state of funding of respiratory science in the UK?

Despite the clear and urgent need to tackle lung disease, there is a gross imbalance between the need for research and the amount of money that is invested in the UK. Only 3.8 per cent of all money spent by the Medical Research Council on medical research is spent on respiratory disease.⁸ The sources of research funding for respiratory researchers are severely limited, resulting in an oversubscription for BLF funds and a fierce competition in which we are unable to support a great deal of excellent research due to lack of funds.

Looking to the future - what challenges are faced?

Research into lung disease has yielded many life-changing results such as the development of effective asthma drugs like salbutamol, the increase in success of lung transplantation and proving the link between smoking and lung cancer. However, there are many questions that remain unanswered and many conditions that still do not have adequate treatments. Some of the main areas that need to be addressed feature:

- What is the basis of susceptibility to COPD?
- How can we diagnose lung cancer earlier?
- How do our genes interact with the environment before birth, and in infancy and childhood, to affect lung health lifelong?
- Why do only some people develop asthma and what role does allergy play?
- What is the cause of pulmonary fibrosis and how can it be treated?

More generally, there is a great need for non-

invasive tests that can tell us about the activity and severity of lung diseases such as asthma, COPD and interstitial lung diseases. This is particularly important in management of lung disease in children. There is also a great need to increase our understanding of the processes in our bodies that are involved in common lung diseases like asthma, COPD and cancer. This will help scientists to use existing drugs better and to develop new treatments.

These questions represent the tip of the iceberg and demonstrate the pressing need for the UK respiratory community to unite in providing coordinated research dedicated to respiratory disease.

⁸ *Lung Report III – casting a shadow over the nation's health*, British Lung Foundation (2003), p. 45.

Introduction to Grant Summaries

In our first 20 years, the British Lung Foundation has funded many different types of research. The following section provides details of some of the most important work we have funded. With such a large number of excellent grants to choose from that cover a wide range of scientific disciplines including basic science, clinical science and epidemiology, selecting the most important contributions has been a very difficult task.

In addition to scientific excellence, the criteria used to select the final list included the impact that the work had on people living with lung disease, the breadth of research topics or diseases and the investigators track record.

The British Lung Foundation has supported many more groundbreaking research studies than can be included in this publication. However, this section provides a flavour of the diverse and vitally important work that we have funded, and continue to fund. The task of shedding light on the causes and treatments of lung disease is still a formidable one and there is plenty of work to do for the next 20 years and beyond.

This diagram shows how the grants outlined in the following section relate to the main questions asked when tackling a disease



What causes a disease?

Principal Grant Holder:	Professor Ken Donaldson
Location:	Napier University, Edinburgh
Title:	The effect of ultrafine particles on lung health
Grant start date:	January 1998
Grant completion date:	September 2002
Amount awarded:	Amount awarded: £109,642
Sponsor:	Transco

"The BLF provides a unique chance for lung scientists to obtain funding to address chronic lung diseases. In funding a Fellowship, as in my case, there was a unique chance to develop my own career; this is especially important so that researchers can be freed from constraints such as heavy teaching loads, which prevent them from reaching their potential as lead researchers."

Our lungs are exposed to many different kinds of dust particle in every breath we take. Fortunately, our lungs are relatively well equipped to deal with this without it affecting their function. Since the industrial revolution, our lungs have had to deal with a host of new smaller particles that are found in air pollution caused by car exhaust, industrial fumes and so on. These include tiny particles known as 'ultrafine' particles, that can be as small as one fifty thousandth of a millimetre across.

Despite the mechanisms we have developed to handle the small particles we breathe in, ultrafine particles do cause damage to our lungs. This damage has been linked to asthma, COPD and lung scarring. The aim of this study was to try to understand more about how and why ultrafine particles cause disease, with the hope that this will lead to the development of new treatments.

Professor Donaldson and his team studied how ultrafine particles interact with lung cells in the laboratory and discovered that ultrafine particles from traffic fumes directly activate inflammation in the lungs. Inflammation is the main mechanism behind many lung conditions including asthma and COPD. The research team also found that the ultrafine particles are small enough to enter the blood stream, where they can interfere with our body's mechanism for clearing blood-clots, and hence can increase the risk of heart attack and stroke.

This research showed that ultrafine particles are amongst the most dangerous components of air pollution and highlighted a direct link to lung disease. By doing this, Professor Donaldson and his team have identified the main targets in the combat against lung diseases caused by pollution.

What causes a disease?

Principal Grant Holder:	Professor Sebastian Johnston
Location:	Dept of Respiratory Medicine, National Heart & Lung Institute, Imperial College London
Title:	Interaction between respiratory viral infections, type 1 and 2 immunity, asthma and COPD
Grant start date:	September 2000
Grant completion date:	August 2004
Amount awarded:	£200,000
Sponsor:	Severin Wunderman Family Foundation Lung Research

"As my career has developed, I have received consistent support from the British Lung Foundation. However, this grant is certainly the most important in that it was a programme grant providing me with support for 4 years at a critical time in my research career. I hope that this work will lead to new therapies for the treatment or prevention of acute attacks of asthma and COPD in the next 5-10 years."

Lung infections by viruses are the most common cause of the sudden worsening of symptoms in asthma and also cause a large proportion of 'flare-ups' in COPD. There is evidence that asthmatics become more ill with viral infections than non-asthmatics, but this is not well understood.

During this study, Professor Johnston and his team investigated whether people with COPD or asthma experienced unusually high numbers of lung infections and if so, why they become so much more ill than normal individuals when infected.

During the course of this grant, Professor Johnston proved that asthmatics are indeed more susceptible to respiratory virus infections than non-asthmatics. The team also found that this is because of defective antiviral responses when the immune system fights the infection. More recently, Professor Johnston has been trying to define exactly what the defective mechanisms are.

By understanding why asthmatics and COPD patients have trouble tackling viral infections in their lungs, scientists will be better equipped to develop new treatments for virus induced asthma and virus induced COPD exacerbations

What causes a disease?

Principal Grant Holder:	Professor Peter Jeffrey
Location:	Royal Brompton Hospital, London
Title:	A study of molecules causing inflammation in the lungs of smokers with COPD.
Grant start date:	January 1998
Grant completion date:	July 2000
Amount awarded:	£87,322

"The BLF is a crucial source of funding for COPD research in the UK"

'Inflammation' describes the localised way that our immune system responds to irritation, injury, infection or to inhaled agents to which we may be allergic. It is well established that unusually prolonged (i.e chronic) inflammation is important to the symptoms and worsening of both asthma and chronic obstructive pulmonary disease (the latter referred to as COPD). In the case of asthma, its inflammation appears to respond well to corticosteroid therapy, usually taken in the form of an inhaler. However, this response is not seen in COPD. The main aim of this study was to gain a greater understanding of both the differences and similarities of inflammation in these two conditions so that new treatments for COPD could be developed.

To do this, following ethical permission and informed patient consent, airway samples of lung tissue removed at surgery for cancer were examined from smokers with and without a history of COPD. In addition, using a specialised tool that allows a tube to be passed into the lung smaller (biopsy) samples were taken from living smokers with mild COPD. The results were compared with similar biopsies taken from healthy non-smokers. These tissue samples were studied in the laboratory using state-of-the-art inflammatory cell identification and molecular techniques.

Compared with what is already known about asthmatics, Prof Jeffrey's group confirmed their previous findings showing that the major types of inflammatory cell were different in COPD than in asthma. However, they also highlighted that two particular cytokines called 'interleukin-4' and 'interleukin-5', normally highly characteristic of asthma, are also present in COPD. The researchers identified the particular inflammatory cell type that is the major producer of these cytokines in COPD. Stopping the production of these cytokines is, thus, a potential target for new drug treatments in COPD. In addition, the researchers found that during periods of sudden worsening of COPD (i.e. an exacerbation), a remarkable change in the predominant pattern of cells and of cytokine production occurred and this showed similarities to the pattern found in asthma. These similarities between a COPD exacerbation and asthma, contrast with the background processes that cause long term damage in COPD and demonstrate how different therapeutic approaches are needed to effectively treat not only the two diseases when they are in a stable phase but how the treatment needs to be altered when there is an exacerbation.

What causes a disease?

Principal Grant Holder:	Professor John Britton
Location:	Respiratory Medicine Unit, City Hospital, University of Nottingham
Title:	A study of the role of diet in the aetiology of asthma and chronic obstructive pulmonary disease
Grant start date:	1st October 1990
Grant completion date:	1 September 1993
Amount awarded:	£135,411

"There is no other dedicated source of funding for research into respiratory disease other than asthma."

Asthma and COPD are major public health problems, yet we still don't have a detailed understanding of their causes. More and more evidence suggests that asthma is partly caused by environmental factors, but the factors responsible are unknown. Smoking and atmospheric pollution are established causes of COPD, but the development of disease in only a minority of those exposed is unexplained.

Recent evidence suggests that what we eat can affect the risk of developing these diseases. As it is relatively simple to change our diet, the public health significance of dietary causes of a disease is potentially immense.

During this study, Professor Britton and his team investigated how our diet might affect the development of asthma and COPD, and at the potential of altering what we eat to prevent and control them.

The main thrusts of this work were to look at whether a high-salt diet increased the chances of developing asthma or COPD, and whether a diet rich in vitamins was protective. The researchers surveyed 2644 adults, asking for information about their diet and their lung health.

The results indicated that salt intake does not increase the risk of developing asthma, but that magnesium and Vitamin C in particular has a beneficial effect on our lungs, although this study did not reveal exactly how they do this.

This work was amongst the first to prove that our diet affects our lung health and opened the door for further study in this area, however we still don't fully understand this area.

This work was co-funded by the National Asthma Campaign (now Asthma UK).

What causes a disease?

Principal Grant Holder:	Dr Ian Pavord
Location:	Department of Respiratory Medicine, University Hospitals of Leicester NHS Trust
Title:	To increase our understanding of what is happening in the lungs of people who live with a persistent cough whose cause cannot be diagnosed.
Grant start date:	September 2001
Grant completion date:	September 2003
Amount awarded:	£25,400

"We are very grateful to the British Lung Foundation for supporting our preliminary research investigating the possibility that some cases of cough are due to autoimmune mechanisms within the lung. Our research is ongoing and we do hope that it will eventually lead to a better understanding of this condition and the development of effective treatments."

Persistent cough is a common problem that can usually be diagnosed and treated successfully. However, there remains a small minority of cases, estimated at between 5 per cent and 20 per cent, where the cause is unknown. Doctors refer to this as 'idiopathic chronic cough'. Research has shown that many of these cases arise in people who also have an 'autoimmune' disease such as diabetes. Autoimmune diseases are caused when the body's immune system attacks a part of the body itself. They do not usually occur alone and it is common for someone to be affected by several different autoimmune diseases. As many people with idiopathic chronic cough also have autoimmune diseases, the researchers wondered whether the cough is caused by an autoimmune disease in the lungs.

Dr Pavord and his team investigated the airways of 19 patients with unexplained chronic cough, 14 patients with explained chronic cough and 11 'healthy' individuals. They did this by taking a small sample of the airway wall tissue. The samples were then analysed, with the main focus on 'inflammation' in the lung tissue. Inflammation describes the way our immune system responds to injury, infection or irritation. The researchers hoped that this might shed some light as to whether there was something wrong with the immune system that was causing an autoimmune reaction.

The results revealed that a particular type of inflammation was present in the airways of some patients with unexplained cough but not in those with explained cough. This type of inflammation is a hallmark of autoimmune disease. Therefore, this evidence supports the researchers' theory that an autoimmune type of inflammatory process is involved in unexplained cough.

These results have furthered our understanding of what is happening in the lungs of people with idiopathic chronic cough. By understanding the process, researchers are better equipped to develop new treatments for this condition.

What does it do to the body?

Principal Grant Holder:	Dr John Stradling
Location:	University of Oxford
Title:	To establish which sleep apnoea patients are most impaired in their driving ability, why their driving is poor, and whether it improves with "nasal CPAP" treatment.
Grant start date:	July 1998
Grant completion date:	June 1999
Amount awarded:	£33,852

"As the only UK charity that funds research into all forms of lung disease, the BLF provides vital support for research into sleep apnoea."

When we sleep our muscles relax, including the muscles in our throat that keep our windpipe open. Normally, this partial relaxation of the throat doesn't cause a problem and we are still able to breathe. However, some people's throat muscles relax too much, leading to a total closure of the throat and they are not able to breathe. This is known as 'Obstructive Sleep Apnoea'. When this happens, there is an automatic response that causes the person to wake up. This can happen in an ongoing cycle throughout the night, of which the person is unaware, resulting in severe lack of sleep.

One of the most common problems that people with sleep apnoea experience is a reduced ability to drive safely due to sleepiness. This might lead to a person losing their driving licence and more importantly may cause serious accidents. It is not known whether established treatments for sleep apnoea are successful enough in reversing this tendency to nod off while driving.

Dr Stradling and his team aimed to determine if a simple test could identify which patients have the most impaired driving ability. In addition, the researchers investigated whether a sleep apnoea treatment called 'nasal continuous positive airway pressure' (NCPAP) could combat these effects and improve driving ability. As the assessment of driving ability on real roads is too dangerous, the researchers used a computer-based driving simulator. 12 people with sleep apnoea performed 30 minute driving simulations and were compared to 12 similar people who did not have sleep apnoea.

As expected, the researchers found that people with sleep apnoea performed significantly worse at the driving simulation than people who are not affected with it. However, they found that after 4 weeks NCPAP treatment, the symptoms of sleep apnoea improved greatly, compared to an untreated group, and driving performance returned to normal. Although these findings are based on a simulation of driving and not the real thing, it is clear that proper treatment can help people with sleep apnoea to drive safely.

This research has shown that the effects of sleep apnoea can be treated and will significantly improve driving ability. This will help people with sleep apnoea to lead a full life.

What does it do to the body?

Principal Grant Holder:	Professor Jadwiga Wedzicha
Location:	London Chest Hospital
Title:	To identify which factors cause exacerbations of chronic obstructive pulmonary disease, concentrating on viral factors, and environmental factors such as pollution.
Grant start date:	September 1996
Grant completion date:	August 1998
Amount awarded:	£59,580
Sponsor:	Littlewoods Lotteries

"Support from the BLF is important as COPD is one of the most common causes of hospital admission with 30,000 deaths per annum and more research is desperately needed in this field."

Chronic Obstructive Pulmonary Disease (COPD) leads to damaged airways in the lungs, causing them to become narrower and making it harder for air to get in and out of the lungs. People with COPD experience times where their symptoms rapidly 'flare-up' – this is known as an 'exacerbation'.

COPD exacerbations are one of the most common causes of hospital visits and account for 30,000 deaths in the UK each year, especially during the winter. Despite this, very little is understood about what causes an exacerbation. Possible factors include bacteria, viruses, temperature change and deterioration in normal lung function. Professor Wedzicha and her team aimed to investigate these potential triggers in order to identify possible targets for treatments that aim to prevent exacerbations.

160 people with COPD were studied over a 2 year period during which time 595 exacerbations were recorded. The possible trigger factors were then studied. The results revealed that viral infections are a very important cause of exacerbations, especially the common cold. Colder temperatures were also found to increase exacerbations. Most patients recovered to normal within 3 months of an exacerbation but 10.5 per cent took over 3 months to recover. Unsurprisingly, frequency of exacerbation was strongly related to quality of life, daily activities and progression of the disease.

This study provided conclusive evidence about what can cause a COPD exacerbation. This has helped researchers to focus their efforts in the right direction when trying to find ways to prevent COPD exacerbations.

What does it do to the body?

Principal Grant Holder:	Professor Tariq Sethi
Location:	University of Edinburgh
Title:	Understanding why small cell lung cancer relapses and becomes resistant to further treatment in patients with small cell lung cancer
Grant start date:	November 2001
Grant completion date:	November 2003
Amount awarded:	£116,351
Sponsor:	Ernest Kleinwort Trust, Weinstock Trust.

"The BLF started my research off and supported me at a very early stage, helping to develop lung cancer research and training with-in respiratory medicine."

Lung cancer is the most common cancer in the developed world. A particular form, called "Small-cell lung cancer" kills 30,000 people a year in the UK alone. Treatment is available in the form of chemotherapy and radiotherapy and there is usually initial success. However, despite this initial success, the tumour often relapses and becomes resistant to further treatment. Therefore, the survival rate at 2 years after the cancer is first diagnosed is less than 5 per cent .

Previous research had shown that resistance to chemotherapy is caused by a similar mechanism in many different types of cancer. This involved the cancer cells 'sticking' to parts of their environment. Professor Sethi and his team wanted to try and understand how this sticking process leads to drug resistance in order to identify ways that scientists could try and stop this from happening and thereby enhance the effects of current treatments.

The researchers worked on Small Cell Lung Cancer cells grown in the laboratory and studied the way they responded to chemotherapy drugs and radiotherapy. The results identified that the cancer cells become resistant to therapy via molecules on their surface called "beta-1 integrins". When a cancer cell's beta-1 integrin molecules 'stick' to parts of their environment they become more established and set off a chain of events that prevents chemo- and radio-therapy from working properly. The researchers also identified the molecules that are involved in this chain of events.

A better understanding of how lung cancers develop resistance to therapy will enable new drugs to be developed that will target these processes and therefore kill the cancer cells that are not killed in the initial treatment. By identifying the mechanisms involved, this research has given scientists new targets for the development of drugs that will destroy cancer cells that become resistant to initial therapies. This will therefore increase the number of people who survive lung cancer.

How can we treat it?

Principal Grant Holder:	Professor Ian Adcock
Location:	National Heart & Lung institute, Imperial College London
Title:	Understanding why certain inflammatory lung diseases such as COPD and cystic fibrosis are resistant to steroid treatment.
Grant start date:	January 2001
Grant completion date:	December 2002
Amount awarded:	£88,741

"Respiratory research is woefully under-funded by Government in the UK. BLF funding is critical in enabling any research to be performed."

Asthma and Chronic Obstructive Pulmonary disease both involve an excessive version of a normal immune response called 'inflammation'. This can be reduced in asthmatics using drugs called 'corticosteroids' which are often used as a successful treatment. However, corticosteroids are not successful in treating COPD. Previous research had suggested that cigarette smoke and other 'oxidative stresses' to the lungs might change the way that corticosteroids act and stop them working. Dr Adcock and his team aimed to investigate this to try and understand what might be going wrong in COPD patients to stop these drugs from working.

Dr Adcock and his team studied samples of cells taken from the lungs of patients with COPD, 'healthy' smokers, healthy non-smokers and human cells grown in the laboratory. Initially they examined how sensitive these cells from COPD patients were to corticosteroids. In subsequent experiments the researchers determined whether an oxidative stress, either cigarette smoke or hydrogen peroxide, could mimic the lack of responsiveness to corticosteroids seen in patients with COPD. Finally they examined the mechanisms that might be important in stopping corticosteroids from working.

This work has determined that cigarette smoke, acting through oxidative stress, can stop corticosteroids from working. Furthermore, this work identified particular enzymes that are affected by cigarette smoke and stop the drugs from working properly. Finally, the researchers found that low doses of an older drug used in the treatment of asthma and COPD called 'theophylline', can re-activate the enzymes that cigarette smoke affects and enhance the function of corticosteroids.

This research proved that smoking can stop corticosteroids from working properly and has explained how this happens. It also suggests that eating food high in anti-oxidants (which combat the oxidative stresses caused by things like cigarette smoke) might help corticosteroids to work better and identified a drug that might also achieve this. Further work is now being done in this field to try and improve the action of corticosteroids in treating COPD.

How can we treat it?

Principal Grant Holder:

Professor John Moxham

Location:

Department of Asthma, Allergy and Respiratory Science, King's College London

Title:

Exercise therapy following hospital admission with COPD

Grant start date:

December 2003

Grant completion date:

December 2004

Amount awarded:

£10,830

"My research group has received regular support from the BLF over the last 15 years. Unfortunately the funding available for research into respiratory diseases is very small and disproportionately low compared to other equally important healthcare problems. The BLF therefore makes a very big contribution to the research effort. Without the BLF it would have been very difficult indeed to sustain my research."

Chronic obstructive pulmonary disease (COPD) is an umbrella term for a number of conditions, including chronic bronchitis and emphysema. COPD leads to damaged airways in the lungs, causing them to become narrower and making it harder for air to get in and out of the lungs.

Many people with COPD are admitted into hospital with a worsening of symptoms, known as an 'exacerbation'. After being discharged, some people fail to cope very well due to a variety of reasons. A prolonged stay in hospital may lead to muscle weakness, a loss of confidence in performing normal day-to-day activities and increased anxiety.

Professor Moxham and his team investigated the effects of an exercise training and education programme known as 'pulmonary rehabilitation'. They wanted to see whether pulmonary rehabilitation would improve quality of life and reduce the chances of re-admission to hospital, after a COPD exacerbation. The research team followed recovery in two groups of COPD patients – one received 'usual' care after they left hospital and the other received pulmonary rehabilitation. The patients were then assessed after three months.

The results clearly showed that pulmonary rehabilitation leads to significant improvements in exercise capacity and health status, and reduced hospital readmission, compared with those given usual care.

Professor Moxham was awarded a BLF Project Grant of £106,696 in 2004, to build on this research and investigate whether these benefits are long-lasting.

How can we treat it?

Principal Grant Holder:	Dr John Macfarlane
Location:	Nottingham City Hospital
Title:	To see if it is possible to demonstrate that antibiotics are often prescribed unnecessarily by GP's for short term chest illness, in previously well adults.
Grant start date:	September 1997
Grant completion date:	December 1998
Amount awarded:	£69,070
Sponsor:	Co-operative Insurance Society

People who visit their GP with a chest problem are often diagnosed with acute bronchitis and most are given antibiotics. However, this treatment is not based on the positive identification of a bacterial infection, and antibiotics are usually prescribed as a matter of habit by the GP and demand by the patient. This frequent use of antibiotics has been blamed for spiralling drug costs and more importantly, for the rise of antibiotic resistance in chest infections. The aim of this study was to find out how often acute bronchitis is caused by a bacterial infection to see if antibiotics really should be prescribed.

Dr Macfarlane and his team looked at 638 previously well adults who visited their GP with acute bronchitis. 316 of these people were studied in detail and completed a daily 'sputum diary' and were given chest x-rays. Sputum, saliva, blood samples and throat swabs were also taken for study in the laboratory. These patients were treated as the GP wished and were followed up after 3 weeks to see how well the treatment had worked.

This research showed that 73 in every 1000 previously well adults experience acute bronchitis each year. 57 per cent of the people studied were given antibiotics. 20 per cent of participants returned within 4 weeks complaining of the same symptoms. Although some evidence of bacteria was found in nearly half of those studied, the speed of recovery was not influenced by the use of antibiotics.

This work indicates that antibiotics do little to influence recovery from acute bronchitis symptoms and that many people get better on their own, without the need for drug treatment. It also highlighted the need for more sophisticated methods of diagnosing the source of lower respiratory tract illnesses so that they can be treated effectively. Importantly, this research has directly contributed to a 30 per cent reduction over the last 5 years in the unnecessary use of antibiotics in treating chest infection. This will help to slow down the development of antibiotic resistance.

BLF/Glaxo-Wellcome Professor of Respiratory Science

Principal Grant Holder:	Professor Jonathan Lamb
Location:	University of Edinburgh
Title:	BLF/Glaxo-Wellcome Professor of Respiratory Science
Grant start date:	March 1997
Grant completion date:	March 2003
Amount awarded:	£467,317.07

During his tenure of this Chair, Professor Lamb made numerous contributions that reflect well on the BLF. Over this period he published more than a dozen ground-breaking papers of direct relevance to allergy and asthma. These included work on the role of a signalling molecule called Notch delta in immune cells called 'regulatory T cells', a gene called 'sonic hedgehog' in mice and exciting work on vaccines for asthma. To support his research he attracted more than £3m of grant funding including two prestigious Programme grants from the Wellcome Trust ("Interactions of the hedgehog, Wnt and TLR signalling pathways with Notch implications in the regulation of peripheral immunity and allergen-induced inflammation of the airways" - £985,000 - 2001-2006) and MRC "Murine studies of Der p 1 allergen induced lung inflammation" (£1.2m - 1999-2004). By enabling Professor Lamb to secure large amounts of funding from other bodies, the money invested by the British Lung Foundation was an excellent investment that returned added value for research into lung disease.

His work was at the international forefront of asthma research and, in the Sunday Times on 24 November 2002, there was a two-page spread on the work of his group. He directly supervised more than ten PhD students in addition to several clinical training fellows for whom he had received prestigious fellowship awards from the MRC/Wellcome Trust, including Kinley Farmer, Gareth Stewart, Karen Adamson, Sonia Wakelin and Phil Hodkinson.

New Appointment

After a short break, the Chair was re-appointed in December 2005 as the British Lung Foundation/GlaxoSmithKline Chair in Epidemiological Respiratory Research. The new incumbent is Dr Richard Hubbard from the University of Nottingham. After completing a First Class BSC in Immunology in 1986, a Bachelor of Medicine and Bachelor of Surgery in 1989, a Doctorate of Medicine in 1995 and a Master's degree in Epidemiology in 1998, Dr Hubbard has committed himself to developing an excellent background in the field of epidemiology. During his time at the University of Nottingham, Richard has held various posts including 'Senior Registrar in Respiratory Medicine' and has completed many important research projects, including studies investigating the origins of asthma, fibrosing alveolitis and occupational/environmental lung disease. Richard is both a Member and Fellow of the Royal College of Physicians (MRCP and FRCP).

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Keith Dorrington	Lincoln College	£799	Sep-85	Treatment of acute respiratory failure in an animal model of the newborn, using the Oxford membrane lung
Dr Janet Powell	Charing Cross and Westminster Medical School	£2,552	Feb-86	Epithelial-mesenchymal interactions in developing lung
Dr Anthony Seaton	Institute of Occupational Medicine	£17,000	Feb-86	The effect of lung-derived neutrophils on alveolar macrophage function
Dr Anthony Grocott	Penkridge Health Centre	£350	Mar-86	A study of the management of asthma in general practice using the practice computer to perform audit
Professor Ross Anderson	St George's Hospital Medical School	£10,037	Apr-86	Trends in Childhood Asthma
Dr John Pepper	St George's Hospital Medical School	£20,000	Apr-86	Investigation of the mechanisms underlying the accelerated rejection of lung allografts in heart and lung transplanted rats
Dr Patricia Haslam	Cardiothoracic Institute, Brompton Hospital	£17,550	May-86	Application of flow cytometry to differentiate and assess the activation
Dr Tak Lee	Guy's Hospital	£18,950	Jun-86	An evaluation of the physiological stimuli leading to eosinophil activation and generation of leukotriene C4 and platelet activating factor
Professor A E Tattersfield	Nottingham City Hospital	£10,935	Jul-86	Development of survey methods for asthma prevalence studies
Dr Edmund Hey	Princess Mary Maternity Hospital, Newcastle	£24,332	Aug-86	A longitudinal survey of natural history of asthma in childhood
Dr D M Mitchell	St Mary's Hospital, London	£16,000	Aug-86	Alveolar macrophages in AIDS patients: increased spontaneous TNF-alpha production in pneumocystis carinii pneumonia
Dr T J Locke	Freeman Hospital, Newcastle	£9,081	Aug-86	Investigation of the mechanisms underlying the accelerated rejection of lung allografts in heart and lung transplanted rats
Dr Fleming Carswell	Royal Hospital for Sick Children, Bristol	£35,000	Oct-86	The diurnal variation in peak expiratory flow rate in asthmatic children and its relationship to exposure to house dust mite allergen
Professor Peter Cole	Cardiothoracic Institute, Brompton Hospital London	£18,000	Oct-86	Investigation of the in vivo role of pseudomonas cilio-inhibitory factors in bronchopulmonary colonisation
Dr Mhairi FitzPatrick	Papworth Hospital	£9,450	Oct-86	The effect of combined heart and lung transplantation on the control of breathing in man
Dr Jagdish Devalia	St Bartholomew's Hospital, London	£20,094	Nov-86	A study of Haemophilus influenzae in the production of inflammatory mediators and their possible contribution to the development of bronchial hyperreactivity in patients with chronic bronchitis
Dr T D Tetley	Charing Cross Hospital, London	£23,416	Dec-86	The role of proteolytic enzymes in acute lung injury
Dr A H Morice	Addenbrooke's Hospital, Cambridge	£30,041	Jan-87	The role of atrial natriuretic peptide in pulmonary hypertension and core pulmonale
Dr Y S Bakhle	Royal College of Surgeons, London	£446	Mar-87	Dopaminergic nerves in lung

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr D Burnett	University of Birmingham	£51,638	Apr-87	The role of inflammatory cells in lung connective tissue destruction
Dr Shaw	St Mary's Hospital, London	£52,734	Apr-87	Phenotypic and functional characterisation of alveolar macrophages in AIDS
Dr J R Pepper	St George's Hospital, London	£31,939	May-87	Investigation of the mechanisms underlying the accelerated rejection of lung allografts in heart and lung transplanted rats
Dr Robert J Davies	St Bartholomew's Hospital, London	£57,929	May-87	An investigation into the natural history of bronchial hyper-responsiveness
Dr Geoffrey Laurent	National Heart & Lung Institute, London	£22,417	Jul-87	Regulation of lung collagen structure at metabolism during normal lung growth and disease
Dr F J Kelly	University of Southampton	£58,365	Jul-87	The development and regulation of enzymatic defences against oxygen toxicity in human fetal and neonate lung
Dr N Johnson	Middlesex Hospital	£22,616	Aug-87	Regulation of release of tumour necrosis factor/cachectic from the macrophages of sarcoidosis patients
Dr Sherwood Burge	East Birmingham Hospital	£17,420	Sep-87	An investigation of the causes of building sickness
Dr T W Higenbottom	Papworth Hospital	£60,455	Jan-88	The mechanism of lung rejection in human heart-lung transplants
Dr Chris Haslett	University of Edinburgh	£56,078	Jan-88	Functional properties of aging neutrophils and macrophage responses after phagocytosis of aged neutrophils
Dr Norman Johnson	The Middlesex Hospital	£25,279	Aug-88	Tumour Necrosis Factor production by alveolar macrophages
Dr J E Earis	Fazakerley Hospital, Liverpool	£11,347	Oct-88	The objective assessment of wheezing using digital signal processing
Dr Lawrence Ormerod	Blackburn Royal Infirmary	£2,488	Nov-88	Asthma admission rates in Indian SubContinent (ISC) ethnic patients; Blackburn
Mr Mark Pickford	Northwick Park Hospital, Harrow	£43,005	Nov-88	A comparison of perfusion and non-perfusion techniques for preservation of lung tissue to improve storage in transplantation
Dr Leonard Poulter	Royal Free Hospital School of Medicine, London	£59,839	Dec-88	Immunological mechanisms in sarcoidosis
Dr Noor Kalsheker	Cardiff Royal Infirmary	£62,757	Jan-89	The molecular pathology of a common mutation of the alpha1-antitrypsin gene associated with chronic lung disease
Dr Colin Morley	Addenbrooke's Hospital, Cambridge	£13,260	Apr-89	Synchronisation of mechanical ventilation and spontaneous respiration in neonates - a system using a non-invasive monitoring technique
Dr Robert Stockley	The General Hospital, Birmingham	£250,000	Apr-89	Studies in chronic destructive lung disease
Professor Peter Lachmann	Addenbrookes Hospital, Cambridge	£50,000	Oct-89	The role of lymphokines in the pathogenesis of allergic disease
Dr Dennis Shale	City Hospital, Nottingham	£38,743	Oct-89	The relationship of tumour necrosis factor alpha secretion to the early phases of inflammatory lung injury
Dr Michael Warburton	St George's Hospital Medical School, London	£17,863	Oct-89	Mechanisms of intracellular collagen degradation in lung fibroblasts
Dr James Catterall	Bristol Royal Infirmary	£27,900	Oct-89	Oxidative killing by alveolar macrophages

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Eric Alton	National Heart & Lung Institute, London	£15,000	Nov-89	The role of the calcium second messenger pathway in the regulation of ion transport in airways' epithelia
Professor Stephen Holgate	University of Southampton	£76,127	Nov-89	A longitudinal study of the relationship between airways hyper-reactivity and respiratory systems in school children
Dr Peter Davies	Sefton General Hospital	£25,000	Dec-89	A prevalence study of pulmonary tuberculosis among the elderly in care in Liverpool
Dr Rory Shaw	St Mary's Hospital, London	£56,816	Jan-90	Lymphocyte, macrophage and fibroblast interactions in the inflammatory and fibrotic response to chronic lung infection by mycobacterium TB.
Dr Richard Strange	University of Keele	£6,000	Jan-90	A study of developmental gene expression in human lung using gene probes
Dr John Moxham	King's College School of Medicine, London	£50,000	Feb-90	The value of nasal positive pressure ventilation in patients with acute exacerbations of chronic bronchitis and emphysema
Dr Andrew Ryle	University of Edinburgh	£37,031	May-90	Elastase-specific inhibitor: isolation of the gene, determination of its sequence, and its expression in a vector
Professor Peter Cole	National Heart & Lung Institute, London	£42,500	Aug-90	In vivo delineation of factors crucial to the pathogenesis of chronic bronchial infection
Professor Peter Barnes	National Heart & Lung Institute, London	£53,494	Sep-90	Genetic transcription of beta-adrenoceptors in lung
Dr Sarah Howie	University of Edinburgh	£39,216	Oct-90	Disturbances of immunoregulation in pulmonary sarcoidosis
Dr Clive Robinson	University of Southampton	£40,090	Oct-90	The putative role of type IV collagenase/gelatinase expression in eosinophil induced airway mucosal injury
Dr John Britton	City Hospital, Nottingham	£135,411	Oct-90	A study of the role of diet in the aetiology of asthma and chronic obstructive pulmonary disease
Professor Chris Haslett	University of Edinburgh	£60,000	Oct-90	The study of respiratory distress syndromes
Dr Charles Pantin	City General Hospital, Stoke on Trent	£23,490	Nov-90	Analysis of peak flow and spirometry records in occupational asthma
Dr R B Sim	University of Oxford	£78,756	Nov-90	Lung surfactant protein A: role
Dr John Macfarlane	University of Nottingham	£20,972	Dec-90	A study of community acquired lower respiratory tract infections in adults
Dr Ashley Woodcock	Wythenshawe Hospital, Manchester	£27,272	Jan-91	The lungs of children following treatment for childhood malignancy
Professor John Gutteridge	National Institute for Biological Standards and Control, Potters Bar	£275,000	Jan-91	The development and application of methods for the detection and measurement of oxidative tissue damage at the molecular level
Professor HR Anderson	St George's Hospital, London	£101,250	Mar-91	LATA factsheets
Dr Karl Nicholson	University of Leicester	£49,993	Mar-91	A study of the interaction between respiratory viruses, psychological factors, life events and reversible airways disease.

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Michael Burr	MRC Epidemiology Unit, Cardiff	£27,800	May-91	Caerphilly/European Respiratory Health Survey
Dr John Boyle	University of Leicester	£16,600	Jul-91	Modulators of potassium channel activity in tracheal smooth muscle
Professor Robert Wilson	University of York	£16,500	Jul-91	Lymphocyte traffic to the lung in an in vivo model of pulmonary inflammation
Professor Neil Douglas	City Hospital, Edinburgh	£48,831	Aug-91	Investigation of which individuals suffer consequences of irregular nocturnal breathing
Dr Neil Thomson	University of Glasgow	£67,845	Aug-91	Effect of guanylate cyclase activators on airway function in asthma
Dr Simon Kroll	Oxford University	£53,148	Oct-91	Haemophilus superoxide dismutase in chronic airway infections
Dr Jadwiga Wedzicha	Royal Brompton, National Heart & Lung Hospital, London	£47,093	Oct-91	Nasal pressure support ventilation for domiciliary use in patients with chronic respiratory failure.
Dr Beatriz Gimenez	University of Aberdeen	£46,332	Oct-91	The measurement of respiratory syncytial virus-specific enhancing antibodies in human cord blood and the relation to subsequent respiratory syncytial virus infection
Dr Janet Stocks	Institute of Child Health, London	£46,029	Nov-91	New approaches to measuring airway function in infants: validity and applications in health and disease.
Dr Duncan Rogers	Imperial College London	£24,811	Jan-92	Epithelial modulation of airway plasma exudation
Professor John Moxham	King's College Hospital, London	£5,900	Jan-92	Evaluation of diaphragm strength using magnetic stimulation of the phrenic nerve
Professor Stephen Holgate	Southampton General Hospital	£62,038	Jan-92	Optimisation of aerosol delivery to the respiratory tract of man in health and disease
Professor John Hughes	Hammersmith Hospital, London	£39,267	Jan-92	Beta receptor imaging of human lungs
Professor Neil Pride	Hammersmith Hospital, London	£37,521	Jan-92	Measurement of airflow resistance during tidal breathing in cardiopulmonary disease
Dr F Shakib	University Hospital Nottingham	£97,760	Jan-92	The role of auto anti-IgE in the pathogenesis of asthma
Dr Andrew Greening	City Hospital, Edinburgh	£59,783	Mar-92	Assessment of macrophage priming by hypoxia: comparison with endotoxin and cytokines using human tissue culture derived macrophages
Professor Roy Harrison	University of Birmingham	£51,996	Mar-92	Effect of ambient air pollution, including acid aerosol, on asthma patients in Birmingham
Dr Timothy Griffiths	St George's Hospital Medical School, London	£16,798	Apr-92	Investigation of the respiratory stimulant properties of adenosine in respiratory failure
Dr Edmund Wilkins	Monsall Hospital, Manchester	£2,000	Apr-92	Potential value of serology in diagnosis of smear-negative pulmonary and extrapulmonary tuberculosis
Dr J Sheehan	University of Manchester	£44,142	Apr-92	Changes in respiratory mucus glycoproteins: relationship to disease
Dr David Mitchell	St Mary's Hospital, London	£94,997	Jun-92	Analysis of T cell antigen receptor expression in sarcoidosis: novel approaches to therapy
Professor Stephen Holgate	Southampton General Hospital	£60,000	Jul-92	The association between rhinoviral upper respiratory and lower airway involvement in normal volunteers and mild atopic asthmatics.

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Paul Kemp	Ninewells Hospital and Medical School, Dundee	£15,988	Jul-92	The effect of labour on pulmonary sodium channel activity: An electrophysiological study on isolated alveolar type II cells.
Dr Christophe Hanning	Leicester General Hospital	£11,980	Jul-92	Localisation of airway collapse in obstructive sleep apnoea with a novel pressure transducer system
Dr Karl Nicholson	University of Leicester	£41,063	Sep-92	Population based studies on the incidence, aetiology, morbidity, mortality and socio-economic effects of acute respiratory illness in the non-institutionalised elderly
Dr Paul Hellewell	National Heart & Lung Institute, London	£59,997	Oct-92	Regulation of neutrophil accumulation in C5a-induced pulmonary inflammation
Dr William MacNee	City Hospital, Edinburgh	£76,370	Oct-92	Biochemical and cellular mechanisms of airspace epithelial injury induced by ozone
Dr Ron Scott	University of Newcastle-upon-Tyne	£59,967	Oct-92	Investigation of cellular reactivity to cytomegalovirus in bronchoalveolar lavage from lung transplant patients
Dr Kian Chung	National Heart & Lung Institute, London	£75,000	Dec-92	Investigation of the mechanisms of occupational asthma: interactions of cigarette smoke and ozone with trimellitic anhydride in a guinea-pig model.
Dr Susan Hill	The General Hospital, Birmingham	£63,780	Jan-93	The immune response to non-typeable Haemophilus influenzae in patients with bronchiectasis
Professor Dennis Shale	University of Wales College of Medicine	£60,000	Jan-93	Lung connective tissue breakdown products as an indicator of injury
Dr David Catty	University of Birmingham	£7,738	Feb-93	Rapid diagnosis and epidemiology of mycobacterial infection: Multiplex PCR and random amplified polymorphic DNA (RAPD) markers for the epidemiology of tuberculosis.
Dr Peter Openshaw	St Mary's Hospital Medical School, London	£59,929	Feb-93	T Cell activation during Respiratory Syncytial Virus infection
Dr Sarah Howie	Medical School, University of Edinburgh	£54,464	Mar-93	Chronic pulmonary fibrosis initiated and driven by antigen - a novel model.
Dr David Holden	Hammersmith Hospital, London	£52,908	May-93	Analysis of Genetic Variation in Aspergillus fumigatus
Dr Patricia Haslam	National Heart & Lung Institute, London	£69,983	May-93	Rationale for surfactant therapy in adult patients with acute lung injury
Dr Dallas Swallow	University College London	£69,871	May-93	The role of mucins in lung disease
Professor Peter Barnes	National Heart & Lung Institute, London	£75,000	Jul-93	Transcriptional regulation of lipid mediator production in inflammatory cells
Dr Nigel Pyne	University of Strathclyde	£74,347	Jul-93	Studies of the cyclic GMP-binding cyclic GMP phosphodiesterase: the major physiological regulator of cyclic GMP hydrolysis in lung and smooth muscle
Dr Rory Shaw	St Mary's Hospital Medical School, London	£68,836	Aug-93	Combined PCR and RFLP to identify drug resistant M. Tuberculosis in clinical samples

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Professor Michael Steward	London School of Hygiene and Tropical Medicine	£81,394	Oct-93	The potential of synthetic peptides to induce protective antibody responses against respiratory syncytial virus infection
Dr John Stradling	Churchill Hospital, Oxford	£41,192	Oct-93	Prospective evaluation of pulse transit time as an 'ambulatory' diagnostic tool in obstructive sleep apnoea
Professor Christopher Haslett	City Hospital, Edinburgh	£46,633	Oct-93	Molecular Mechanisms of Increased Neutrophil Surface Adhesiveness Caused by Priming and Activation
Dr Rajneesh Malhotra	University of Oxford	£123,820	Nov-93	Role of Collectins in host defences
Dr Tariq Sethi	University of Edinburgh	£61,635	Nov-93	Molecular mechanisms of the second messenger signals initiated by neuropeptide binding to small cell lung cancer
Dr Jill Warner	Southampton General Hospital	£249,876	Nov-93	Preventing allergic asthma - the effect of individually targeted allergen avoidance in the first year of life predicted by allergen stimulated cord blood T cell proliferative and cytokine profiles
Professor Stephen Holgate	Southampton General Hospital	£39,000	Jan-94	The cellular and mediator basis of ambient ozone induced airway injury
Professor Robert Davies	St Bartholomew's Hospital, London	£35,669	Feb-94	A study of the effect of exposure for six hours to combinations of commonly occurring air pollutants on the subsequent airway response of mild asthmatic patients to inhaled allergen
Dr Anne Thomson	John Radcliffe Hospital, Oxford	£25,035	Apr-94	The patterns and strategies of breathing in infants with bronchiolitis and conditions for optimal supportive care
Dr Geoffrey Laurent	UCL Medical School, London	£89,838	May-94	The role of cadmium in the pathogenesis of smoking-induced emphysema
Professor Chris Haslett	University of Edinburgh	£77,667	Jul-94	Early inflammatory mechanisms in patients at risk of the Adult Respiratory Distress Syndrome (ARDS)
Professor Neil Pride	Hammersmith Hospital, London	£18,794	Aug-94	Measurement of airflow resistance during tidal breathing in cardiopulmonary disease
Dr John Macfarlane	Nottingham City Hospital	£47,539	Sep-94	An investigation into the aetiology and outcome of community acquired lower respiratory tract infections (LRTI) in adults who fail to improve with initial antibiotics.
Professor Neil Douglas	University of Edinburgh	£48,337	Sep-94	Investigation of which individuals suffer consequences of irregular nocturnal breathing
Dr Monica Spiteri	North Staffordshire Hospital Trust	£72,715	Sep-94	The role of neuropeptides in modulating inflammation and progression to fibrosis in the human lung
Dr Christina Luczynska	St Thomas' Hospital, London	£62,850	Oct-94	The influence of environmental allergens and air pollution on respiratory health
Professor Neil Thomson	Gartnavel General Hospital, Glasgow	£74,195	Oct-94	Effect of hypoxia and hyperoxia on bronchodilator and bronchoconstrictor responses in asthma and COPD
Dr Andrew Peacock	Western Infirmary, Glasgow	£52,896	Oct-94	Signal transduction in the pulmonary vascular hypertrophy associated with pulmonary hypertension: the role of endothelin 1 and hypoxia

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Jane Mitchell	National Heart & Lung Institute, London	£73,942	Nov-94	Regulation of the inflammatory isoforms of cyclooxygenase (COX-2) and nitric oxide synthase (iNOS) in the lung.
Dr Paul Elliott	London School of Hygiene & Tropical Medicine	£26,052	Jan-95	Small area study of traffic flows and respiratory health
Dr Alan Knox	City Hospital, Nottingham	£23,698	Aug-95	Molecular identification of the Na/Ca exchanger isoform(s) present in human and bovine airway smooth muscle
Dr Rory Shaw	St Mary's Hospital, London	£38,604	Aug-95	Evaluating potential therapies for lung fibrosis using a human ex vivo model
Dr Rory Shaw	St Mary's Hospital, London	£90,856	Aug-95	Field test of the use of molecular biology techniques to improve the diagnosis and management of tuberculosis in the UK
Professor William MacNee	Edinburgh Royal Infirmary	£95,403	Sep-95	Mechanisms and consequences of neutrophil sequestration in the lungs and the pathogenesis of emphysema.
Dr Robert Stockley	The General Hospital, Birmingham	£56,837	Oct-95	The role and regulation of secretory leukoprotease in the pathogenesis of bronchial disease
Professor Peter Barnes	Imperial College London	£76,848	Nov-95	Exhaled nitric acid in lung disease
Dr Ian Dransfield	Rayne Laboratory, Edinburgh	£65,987	Nov-95	Mechanisms of acute lung injury - regulation of neutrophil adhesion potential by priming and activation
Dr Jon Friedland	Royal Postgraduate Medical School, Hammersmith Hospital	£59,555	Nov-95	Regulation of cellular recruitment during the inflammatory response to Mycobacterium tuberculosis.
Dr Geoffrey Toms	University of Newcastle	£8,209	Nov-95	The role of antigenic variation in the pathogenesis of respiratory syncytial virus infection
Dr Chris Wright	Royal Victoria Infirmary, Newcastle-upon-Tyne	£21,720	Nov-95	Cell proliferation and programmed cell death in early human lung development
Dr A H Morice	Royal Hallamshire Hospital, Sheffield	£50,747	May-96	Mechanism of adverse effects of fenfluramine and amitriptyline on the pulmonary circulation.
Dr Andrew Wardlaw	Glenfield Hospital, Leicester	£87,606	Jun-96	P-Selectin expression in asthma
Professor Tim W Evans	National Heart & Lung Institute, London	£400,000	Aug-96	Cellular redox imbalance, endothelial damage and abnormalities of pulmonary vascular control in lung injury
Dr David R Graham	Whiston Hospital, Prescott	£42,430	Aug-96	A study into lung disease associated with rheumatoid arthritis.
Dr Sebastian L Johnston	Imperial College London	£112,832	Aug-96	A study of respiratory syncytial virus induced T cell responses in atopic and non-atopic individuals.
Dr Neil J Douglas	Edinburgh Royal Infirmary	£93,372	Sep-96	Randomised trial of CPAP or orthodontic devices on symptoms and daytime function in patients with sleep apnoea/hypopnoea syndrome.
Professor Paul G Hellewell	University of Sheffield	£75,344	Sep-96	Role of endothelial selectins and alpha chemokines in the induction of experimental acute lung injury.
Dr Dallas Swallow	University College London	£82,587	Sep-96	Genetic polymorphism of the human mucin genes and their expression in chest disease.

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Jadwiga Wedzicha	London Chest Hospital	£59,580	Sep-96	A prospective longitudinal study of the role of environmental and viral factors in exacerbations of chronic obstructive pulmonary disease (the east London COPD study).
Dr Paul A Corris	Freeman Hospital, Newcastle-upon-Tyne	£13,720	Oct-96	Exhaled nitric oxide in lung transplant recipients
Dr Mark A Giermbycz	National Heart & Lung Institute, London	£80,459	Oct-96	Second messenger control of oxidative metabolism in human adherent eosinophils.
Dr Nigel J Pyne	University of Strathclyde	£84,980	Oct-96	Novel mechanisms regulating cyclic GMP signalling in airway smooth muscle.
Dr Patricia L Haslam	National Heart & Lung Institute, London	£85,000	Nov-96	Prognostic relevance of persistent pulmonary neutrophilia in acute lung injury: mechanisms and therapeutic implications.
Professor William MacNee	University of Edinburgh	£75,630	Dec-96	Molecular mechanisms of gamma-glutamylcysteine synthetase regulation in airspace epithelial cells and lungs.
Professor John Britton	City Hospital, Nottingham	£57,649	Jan-97	Study of the relation between metal dust exposure and the occurrence of cryptogenic fibrosing alveolitis in a large occupational cohort.
Dr Sailesh Kotecha	University of Leicester	£84,329	Jan-97	The role of perinatal events on the pathogenesis of chronic lung disease of prematurity.
Dr Andrew Povey	University of Manchester	£82,409	Jan-97	DNA repair phenotype and lung cancer susceptibility,
Dr Ann Millar	University of Bristol	£77,922	Feb-97	Does the inappropriate regulation of tumour necrosis factor-alpha play an important role in the development of cryptogenic fibrosing alveolitis.
Professor Johnathan Lamb	University of Edinburgh	£467,317	Mar-97	In support of the British Lung Foundation/Glaxo-Wellcome Chair of Respiratory Science.
Professor Robert Stockley	University of Birmingham	£105,617	Jul-97	The regulation of human neutrophil elastase gene transcription.
Professor John Moxham	Kings College School of Medicine and Dentistry, London	£94,199	Aug-97	Physiological pulmonary rehabilitation: an initial study.
Professor George Davey Smith	University of Bristol	£65,562	Aug-97	Early growth, nutrition, childhood infection and adult respiratory health.
Dr John Macfarlane	Nottingham City Hospital	£69,070	Sep-97	Causes of Respiratory Tract Illness: an investigation into the role of infections in the aetiology and outcome of community-acquired lower respiratory tract illness in previously well adults in primary
Ms Angela Crewes	Yeovil District Hospital	£3,000	Oct-97	Does education by a respiratory nurse specialist of patients and carers of those receiving long term oxygen therapy improve compliance and quality of life?
Professor Brendan Wren	London School of Hygiene and Tropical Medicine	£107,580	Nov-97	Molecular and immunological characterisation of putative Mycobacterium tuberculosis haemolysin and determination of its role as a virulence determinant.
Dr Sarah Cluley	Guy's Hospital, London	£37,143	Dec-97	A randomised controlled trial to evaluate Cognitive Analytic Therapy (CAT) in improving patient compliance with medication and in decreasing asthma severity in poorly controlled asthma.

20 years of research Grant Listings

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Professor Ron Du Bois	National Heart & Lung Institute, London	£133,397	Jan-98	The role of TGF beta in fibrosing lung disease
Professor Kenneth Donaldson	Napier University, Edinburgh	£109,642	Jan-98	The effects of ultrafine particles on lung cells
Dr John S Friedland	Hammersmith Hospital, London	£74,080	Jan-98	TH2-derived cytokines and regulation of IL-8 gene
Professor Peter Jeffery	Imperial College School of Medicine, London	£87,322	Jan-98	Molecular analysis of CD8+ T-lymphocytes and cytokines in smokers COPD: in situ hybridization of airway mucosa and lung parenchyma.
Dr P Jeffery	National Heart & Lung Institute, London	£87,322	Jan-98	To understand how smoking leads to the development of COPD, to enable accurate diagnosis of COPD and to help develop specific treatment for COPD
Dr Andy Peacock	Western Infirmary, Glasgow	£77,063	Feb-98	Effects of acute and chronic hypoxia on cells derived from the pulmonary and systemic circulations.
Professor G John Gibson	Freeman Hospital, Newcastle-upon-Tyne	£48,415	Apr-98	Prospective prediction of the benefit of laser-assisted uvulopalatoplasty for snoring.
Dr John R Stradling	Churchill Hospital, Oxford	£33,852	Jul-98	The pathophysiology, severity and response to treatment of driving stimulator performance in patients with obstructive sleep apnoea.
Dr Allan Knox	University of Nottingham	£2,995	Aug-98	The role of tuberin and rap GTPases in airway smooth muscle with reference to lymphangioleiomyomatosis.245
Professor David Strachan	St George's Hospital Medical School, London	£94,852	Sep-98	Prospective investigation of the determinants of Allergic sensitisation, atopic and non-atopic wheezing in early childhood in the ALSPAC cohort.
Professor Derek Cook	St George's Hospital Medical School, London	£23,457	Oct-98	Longitudinal study of lung function development in British Children.
Dr Stephen Hart	University College London Medical School	£89,690	Oct-98	Development of a novel non-viral vector system for gene therapy of respiratory diseases.
Dr BG Higgins	Freeman Hospital, Newcastle-upon-Tyne	£9,665	Oct-98	The use of a novel patient activity monitor to assess the therapeutic effect of Salmeterol in patients with COPD.
Dr Anthony Postle	Southampton General Hospital	£87,351	Oct-98	The role of surfactant protein D (SP-D) and phospholipid in the regulation of the innate immune response of children to respiratory infection.
Dr Richard Costello	Beaumont Hospital, Dublin	£40,570	Oct-98	An investigation of the mechanism of localisation of eosinophils to airway nerves.
Mrs Sharon Fleming	Royal Brompton Hospital, London	£9,767	Nov-98	A pilot study of the effects of a specialist nurse led cognitive behavioural therapy service in coping, respiratory function and quality of life for patients with bronchostatisis.
Professor Edwin Chilvers	Addenbrookes Hospital, Cambridge	£103,117	Jan-99	Characterisation of the TNFalpha receptor-death-inducing signalling complex (DISC) in human neutrophils.
Professor Johnathan Lamb	Edinburgh University	£32,907	Jan-99	Studies on positive and negative signalling by antigen presenting cells in the regulation of chronic inflammation.

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Professor John Moxham	Kings College School of Medicine, London	£9,945	Jan-99	An investigation of the effects of a community based follow-up programme on the maintenance of improvements achieved with pulmonary rehabilitation in patients with COPD.
Professor Peter Barnes	National Lung & Heart Institute, London	£92,435	Jul-99	Macrophage-derived matrix metalloproteinases in COPD.
Dr Brian Harrison	Norfolk and Norwich Hospital	£180,551	Sep-99	Evaluation of a home based coping skills training programme for high risk asthma sufferers.
Dr John Macfarlane	Nottingham City Hospital	£27,332	Sep-99	SMARTI-PIL: Study of the management of respiratory tract illness - patient information leaflet.
Professor Monica Spiteri	North Staffordshire Hospital Trust	£94,105	Sep-99	Is the 170SV polymorphism at the glutathione S-transferase, GSTH1, locus development of atopic airway inflammation?
Dr Huw Williams	Imperial College London	£100,962	Oct-99	Identification of stationary phase inducible genes of Mycobacterium tuberculosis and their role in dormancy.
Dr Joanne Clough	Southampton General Hospital	£34,059	Oct-99	The relationship between maternal health and nutrition, neonatal lung function, and the development of atopy and respiratory symptoms in the first year of life.
Dr Steven Cunningham	Great Ormond Street Hospital for Children, London	£5,678	Oct-99	An evaluation of the pig as a large animal model in gene vector delivery to the lung.
Professor Francis Drobniowski	Dulwich Hospital, London	£94,974	Oct-99	A multilocus analysis of molecular variation in candidate drug resistance genes in M. tuberculosis in England and Wales.
Dr Ajit Lalvani	John Radcliffe Hospital, Oxford	£75,277	Oct-99	Mechanisms of CD4+ and CD8+ lymphocyte mediated cytotoxicity against M. tuberculosis.
Professor John Britton	Nottingham City Hospital	£34,655	Nov-99	A case-controlled study of differences in membrane fatty acids in asthma.
Dr Farouk Shakib	University Hospital, Nottingham	£94,740	Nov-99	The proallergic effects of the proteolytic activity of the dustmite allergen Der p 1.
Professor Sebastian Johnston	Imperial College London	£61,133	Nov-99	An experimental infection study to investigate the mechanisms of virus-induced exacerbations of asthma.
Dr Stephen Mutsaers	University College London	£80,792	Dec-99	Regulation of malignant tumour growth by inhibition of extracellular matrix production.
Professor Ken Reid	University of Oxford	£18,000	Dec-99	Therapeutic trials of surfactant protein D (SP-D) in mouse models of respiratory infection.
Professor Anthony Seaton	University Medical School, Aberdeen	£55,342	Jan-00	Symptoms, peak flow rate and personal exposure to particulate air pollution in patients with chronic lung disease.
Dr Anita Simonds	Royal Brompton Hospital, London	£81,616	Feb-00	Mechanisms of efficacy in domiciliary non-invasive ventilation.
Professor Janet Stocks	Institute of Child Health, London	£79,444	Apr-00	Respiratory function and clinical status in pre-school children with cystic fibrosis.
Professor Sebastian Johnston	National Heart & Lung Institute, London	£200,000	Sep-00	Interaction between respiratory viral infections, type 1 and 2 immunity and asthma and COPD.

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Hilary Pinnock	Whitstable Health Centre	£10,000	Sep-00	A randomised controlled trial comparing the clinical and cost effectiveness of telephone consultations with face-to-face consultations in the management of adult asthmatics in primary care.
Professor Paul Corris	Freeman Hospital, Newcastle-upon-Tyne	£33,163	Oct-00	Role of induced sputum in assessing chronic allograft rejection following lung transplantation.
Dr Anthony Frew	Southampton General Hospital	£119,828	Oct-00	The effects of diesel exhaust particles on the epithelial mesenchymal trophic unit and their role in asthma chronicity.
Professor Jadwiga Wedzicha	St Bartholomews Hospital, London	£10,000	Oct-00	Relation of exacerbation frequency to the diagnosis
Dr Tariq Sethi	University of Edinburgh Medical School	£116,351	Nov-00	The molecular mechanisms underlying relapse and resistance to chemotherapy in small cell lung cancer.
Dr Ann Millar	University of Bristol	£200,000	Dec-00	Inflammatory regulation in the human lung: TNF-alpha homeostasis is the key.
Dr Sarah Dunsmore	The Rayne Institute, Royal Free and University College Medical School, London	£34,163	Dec-00	The role of neutrophil elastase in pulmonary fibrosis.
Dr Chris Griffiths	Medical College of St Barts and Royal Hospitals, London	£133,057	Dec-00	Withdrawal of inhaled corticosteroids in patients with COPD in general practice (WISP).
Dr Ian Adcock	Imperial College London	£88,741	Jan-01	Oxidative stress and cigarette smoking induce resistance to corticosteroids.
Dr Mark Elliott	St James's University Hospital, Leeds	£35,639	Feb-01	The role of continuous monitoring of patients with ventilatory failure in optimising non-invasive ventilation.
Professor Hannah Gould	GKT School of Biomedical Sciences, London	£77,117	Feb-01	The role of chromatin accessibility and germline gene transcription in immunoglobulin heavy-chain switching to IgE.
Dr Sally Singh	University of Leicester	£9,895	Feb-01	Clarification of the dose response curve to pulmonary rehabilitation.
Professor Marlene Rose	Harefield Hospital, Middlesex	£35,903	Sep-01	Role played by direct and indirect allorecognition
Dr Ian Pavord	University Hospitals of Leicester NHS Trust	£25,400	Sep-01	The immunopathology of idiopathic chronic cough.
Dr Peter Bradding	University of Leicester	£71,006	Oct-01	Electrical mechanisms of human mast cell 'stabilisation' by anti-secretory drugs.
Dr Richard Hubbard	Nottingham City Hospital	£9,557	Oct-01	Is the use of nicotine replacement therapy or bupropion for smoking cessation safe in patients with COPD?
Dr Robin McAnulty	University College London	£77,351	Nov-01	Effect of up-regulating cyclooxygenase-2 gene expression on the development of pulmonary fibrosis.
Professor Kenneth Reid	University of Oxford	£59,361	Nov-01	Therapeutic assessment of the recombinant fragments of human SP-A and SP-D in lung allergy.
Dr Giovanna Lombardi	Imperial College London	£119,935	Jan-02	The molecular basis of T cell immunity to metals.
Professor Dennis Shale	University of Wales College of Medicine	£119,690	Apr-02	Metabolic and pulmonary factors underlying altered body composition in chronic obstructive pulmonary disease.

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Neil Barnes	The London Chest Hospital	£119,237	May-02	Modification of airway immunopathology in asthma and chronic obstructive pulmonary disease in relation to smoking and reversibility.
Professor Duncan Geddes	Royal Brompton Hospital, London	£9,000	Jul-02	Bronchoscopic technique for lung volume reduction in severe emphysema.
Professor K Cheng	University of Birmingham	£119,870	Sep-02	Risk factors for hospitalisation amongst the elderly with acute respiratory infections during the winter. A case-control study.
Professor John Moxham	GKT School of Medicine, King's College London	£100,107	Sep-02	Neural respiratory drive during successful and unsuccessful trials of weaning from mechanical ventilation.
Dr Alexander Faith	Guy's, St Thomas' and King's College School of Medicine, London	£78,349	Oct-02	Functional characterisation of dendritic cells isolated from the respiratory tract of allergic rhinitic and asthmatic patients.
Dr Zsuzsanna Tabi	University of Wales	£108,965	Oct-02	Characterisation of cytotoxic T cell responses specific for simian virus 40 large T antigen in malignant pleural mesothelioma patients.
Professor Terence Stephenson	University of Nottingham	£84,834	Oct-02	A randomised controlled trial of oral versus intravenous inpatient treatment for community acquired pneumonia in previously well children.
Professor Graham Rook	Royal Free and University College Medical School, London	£119,833	Oct-02	IL-4/IL-4delta2 expression and antigenic components that drive IL-4 expression in blood and alveolar lavage cells from patients with tuberculosis.
Dr Jeremy Brown	Imperial College London	£87,332	Nov-02	Investigation of components of Streptococcus pneumoniae ABC transporters as potential vaccine candidates.
Professor Monica Spiteri	North Staffordshire Hospital	£119,776	Nov-02	Role of connective tissue growth factor overexpression in idiopathic pulmonary fibrosis.
Dr Mark Griffiths	Royal Brompton Hospital, London	£61,852	Dec-02	Mechanotransduction by alveolar epithelial integrins mediates chemokine release and ventilator-induced lung injury.
Dr Lynne Bingle	The University of Sheffield Medical School	£119,875	Jan-03	PLUNC proteins: potential mediators of chronic inflammatory lung disease.
Dr Mike Morgan	University Hospitals of Leicester NHS Trust	£120,000	Mar-03	Enhancement of cellular adaptation to physical training in chronic obstructive pulmonary disease. A randomised placebo controlled trial of creatine supplementation.
Dr Steve Pereira	Middlesex Hospital	£15,000	Apr-03	Impact of endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) on the diagnosis and staging of lung cancer.
Professor Edwin Chilvers	University of Cambridge School of Clinical Medicine	£99,933	Jul-03	Phospholipase D signalling and regulation in human neutrophils
Mrs Fiona Kellett	Wythenshawe Hospital, Manchester	£9,786	Sep-03	A double blind study to compare nebulised hypertonic saline (7 per cent) and nebulised normal saline (0.9 per cent as an adjunct to physiotherapy airway clearance techniques in patients with bronchiectasis.
Dr Helen Parfrey	University of Cambridge School of Clinical Science	£5,000	Oct-03	The role of alpha1 antitrypsin in the pathogenesis and progression of interstitial lung disease.

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Tariq Sethi	University of Edinburgh Medical School	£109,026	Nov-03	The role of Notch signalling on small cell lung cancer cell growth and escape from immune surveillance
Dr Robin McAnulty	University College London	£48,685	Nov-03	Effect of up-regulating cyclooxygenase-2 expression on the development of lung fibrosis
Professor John Moxham	GKT School of Medicine, London	£10,830	Dec-03	A pilot study to evaluate the effects of early pulmonary rehabilitation following hospitalisation for acute exacerbation of chronic obstructive pulmonary disease
Dr Robina Coker	Imperial College London	£29,466	Dec-03	Outcomes of air travel in people living with respiratory disease
Professor Jadwiga Wedzicha	St Bartholomew's Hospital, London	£96,231	Jan-04	Effects of long term macrolide antibiotic therapy in patients with COPD
Mrs Sue Cooper	City Hospital, Nottingham	£14,527	Jan-04	Effect of mouth taping at night on asthma control
Dr Rachel Chambers	University College London	£111,067	Jan-04	Role of PAR-1 and CTGF in fibrotic lung disease
Dr Hans Michael Haitchi	Southampton General Hospital	£107,000	Feb-04	The role of ADAM (A disintegrin and Metalloprotease) 33, a novel asthma susceptibility gene, in embryonic lung development
Dr Kenneth O'Byrne	Leicester Royal Infirmary	£14,950	Mar-04	Is phosphorylated-epidermal growth factor receptor (pEGFR) a prognostic marker that predicts non-small cell lung cancer responsiveness to targeted anti-EGFR therapies?
Professor Andrew Bush	Royal Brompton Hospital	£112,864	Oct-04	Prospective, randomised controlled trial of the use of inflammatory markers to guide therapy in children with severe asthma
Professor John Moxham	King's College Hospital	£106,696	Sep-05	Early Pulmonary Rehabilitation Following Hospitalisation For Acute Exacerbations of COPD
Dr Seif Shaheen	King's College London	£118,611	Apr-05	How do genes modify the prenatal and postnatal effects of tobacco smoke, paracetamol and antioxidant exposure on childhood respiratory outcomes?
Dr Luminita Stanciu	Imperial College	£120,000	Nov-04	Role of the novel co-stimulatory molecules PD-L1 and PD-L2 in regulating CD8+ T cell responses to RSV infection
Dr Stephen Ellis	London Chest Hospital	£37,232	Aug-05	Prospective study of the incidence of pulmonary embolism (PE) in patients hospitalised with an acute exacerbation of chronic obstructive pulmonary disease (COPD)
Dr Mohib Uddin	University of Southampton	£115,630	Feb-05	An investigation into mechanisms regulating neutrophil-bronchial epithelium interactions in moderate to severe asthma
Dr Howard Clark	University of Oxford	£95,760	Feb-05	Investigation of the mechanisms by which surfactant protein D prevents the development of pulmonary emphysema
Professor Peter Calverley	University of Liverpool	£105,027	May-05	Role of abnormal chest wall movement and tidal flow limitation in impairing exercise capacity in COPD
Dr Alison MacKinnon	University of Edinburgh	£111,455	Jan-05	Neuropeptide receptors as a therapeutic target in small cell lung cancer

GRANT HOLDER	INSTITUTION AWARDED	AMOUNT	START DATE	RESEARCH TITLE
Dr Anne Bruton	University of Southampton	£14,993	Apr-05	The effects of a 4-week programme of physiotherapy breathing retraining on patients with either asthma or hypoventilation syndrome
Dr Andrea Venn	University of Nottingham	£14,330	Jan-05	Does living close to a main road increase the risk of asthma, allergy or chronic airflow obstruction?
Dr John Earis	University of Liverpool	£15,000	Feb-05	The use of Active and Passive Sound in the identification and monitoring of COPD
Dr Hugh Montgomery	University College London	£14,992	May-05	ACE Geneotype in COPD and response to pulmonary rehabilitation
Dr Len Stephens	The Babraham Institute, Cambridge	£119,753	TBC	Role of the Small GTPase RhoG in Neutrophil Activation
Prof Tyson V Sharp	University of Nottingham Medical School	£72,087	TBC	Characterization of the expression of the novel tumour suppressor LIMD1; a marker for lung carcinogenesis?
Dr Jeremy S Brown	Medicine, Royal Free and UCL Medical School, London	£110,605	TBC	Mechanisms of protection and efficacy of novel Streptococcus pneumoniae vaccines based on lipoprotein components of ABC transporters
Dr Graham Roberts	University of Southampton	£119,533	TBC	The influence of maternal nutrition and fetal growth on childhood airway structure and atopy
Dr Sally Singh	University Hospitals of Leicester	£14,961	TBC	A self-management programme for COPD; can it be delivered effectively?
Prof Martyn R Partridge	Imperial College London	£13,959	TBC	The Development of an Interactive Electronic Pictorial Asthma (and subsequently COPD) treatment action plan
Dr Mark Paul-Clark	Imperial College London	£120,000	TBC	Sensing of oxidative stress by the innate immune system in inflammatory lung disease
Dr Charlotte Dean	MRC Mammalian Genetics Unit, Harwell	£117,009	TBC	A Developmental Approach to Understanding Lung Disease
Dr Helen Maria Marriott	University of Sheffield	£119,968	TBC	Molecular analysis of the effects of influenza A virus on macrophage innate immune infection

One person in every seven in the UK is affected by lung disease. It has a devastating impact on quality of life and every year costs the NHS more than any other disease area. Despite important advancements in diagnosis, treatment and care, there are many questions that remain unanswered in tackling lung conditions.

As we celebrate our 20th birthday, the British Lung Foundation has spent over £17 million on supporting the respiratory research community, awarding more than 260 separate research grants all over the UK. These grants have tackled diverse areas of lung disease, from COPD to pneumonia, from lung cancer to sarcoidosis.

This publication explains why research into lung disease is important, provides an overview of the current state of respiratory research, and describes the major achievements of BLF-funded medical research in our first 20 years.

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BRITISH LUNG FOUNDATION 
20th birthday