



The Charity

The Lowe Syndrome Trust was founded in June 2000 by Lorraine and Andrew Thomas following their five year old son's diagnosis of the Lowe Syndrome disease and discovering there was no UK support or research of the disease. The charity is small and voluntary organised from a home office with the help of a few friends. The aim of the Trust is to raise funding for medical research which will lead to better treatments and eventually a cure of the disease which affects the brain, eyes, kidneys, bones and muscles. Sadly, life expectancy is short due to the complications of the disease..

Lowe Syndrome

Lowe Syndrome (LS) is a rare genetic condition that causes physical and mental handicaps, and medical problems. It was first described in 1952 by Drs. Lowe, Terrey, and MacLachlan at the Massachusetts General Hospital in Boston.

The condition became known as "Lowe syndrome" named after Dr. Charles Lowe, the senior member of the group that described it. Because of the three major organ systems involved (eyes, brain, and kidney), it is also known as OCRL (oculo-cerebro-renal) syndrome.

Boys with Lowe Syndrome are born with cataracts in both eyes, which are usually removed at a few months of age. Most boys are fitted with glasses, contacts, or a combination of the two. Glaucoma is present in about 50% of the boys with Lowe syndrome, though usually not at birth. Prescription eye drop and/or surgery is required to maintain appropriate eye pressure in these cases.

While not present at birth, many Lowe Syndrome boys develop kidney problems at approximately one year of age. This is characterized by the abnormal loss of certain substances into the urine, including bicarbonate, sodium, potassium, amino acids, organic acids, albumin and other small proteins, calcium, phosphate, glucose, and L-carnitine. This problem is known as Fanconi-type renal tubular dysfunction and can also be seen in certain other diseases and syndromes. In Lowe syndrome, the Fanconi syndrome may be mild and involve only a few substances or may be severe and involve large losses of many substances. Medications can be prescribed to replace the lost substances.

What causes Lowe Syndrome?

- Lowe syndrome is caused by a defective gene that results in the deficiency of an enzyme called phosphatidylinositol 4,5-biphosphate. This enzyme is essential to normal metabolic processes that take place in a certain part of the cell called the Golgi apparatus. Because of the enzyme deficiency, cell functions that are regulated by the Golgi are abnormal, leading to various developmental defects in LS including cataracts and kidney and brain problems. How the enzyme deficiency leads to these defects is not yet completely understood.*

What are the common features of Lowe Syndrome?

- *Cataracts in both eyes, found at birth or shortly after. Glaucoma, corneal degeneration, strabismus, nystagmus and in rare cases eye removal.*
- *Bones. Rickets and soft bones, fractures, short stature, joint swelling and arthritis, tooth decay. Muscle weakness – arthritis, scoliosis, swelling of joints*
- *Poor muscle tone and delayed motor development*
- *Mental retardation, ranging from borderline to severe. Intellectual impairment, Seizures, behaviour problems, physical changes in brain, hypotonia*
- *Kidney involvement ("Leaky" kidneys, or renal tubular acidosis) causing metabolic imbalance leading to kidney failure*
- *Growth problems, Cysts in brain, kidneys and body, undescended testicles, respiratory illness*

What are boys with LS like?

Generally, they are affectionate and sociable, love music, and have a great sense of humor.

Lowe Syndrome Trust Research

Since forming in June 2000, the charity has raised over £300,000 which has instigated and funded five UK research projects and contributed funds to support three projects in the USA from fundraising campaigns. Also part contributed funds to The first international Lowe Clinical Workshop hosted by Prof Nussbaum, head of research at the National Institute of Health Genetic Research Institute in Bethesda Washington USA.

- £25,000 to three research projects through the *LSA USA: (1) To Prof. J W Thorner, University of California and (2) Erik M Jorgensen, Ph.D and Kimberley R Schuske University of Utah
- £9,000 to Great Ormond Street Childrens Hospital – Prof's Unwin, Dr Van't Hoff & Dr Laube "An investigation of intracellular metabolism in renal proximal tubular cells from patients with Lowe syndrome"
- £50,000 over 3 years to Imperial College London, Department of Chemistry, Dr Vilar-Compte and Dr Woscholski. "a novel diagnostic tool for the oculocerebrorenal syndrome of Lowe"
- £50,000 over 3 years for Dundee University Scotland Dr J. Lucoq, "OCRL1 and its lipid products"
- £50,000 over 3 years to University College London by Prof. S Cockcroft "Assessment of Golgi structure and membrane traffic in OCRL Cells"
- £50,000 over 3 years to Institute of Ophthalmology(Moorfields) to Dr Tim Levine "The Cell Biology of the Effects of Lowe Syndrome in the Eye".

The Trust will shortly advertise another grant of £50,000 (September 05)

*The funding is payable in stages subject to milestones having been achieved. Great Ormond Street have successfully cultured cells from Lowe Syndrome Patients for a cell bank for the other projects; Imperial College will produce a simple chemical test for Lowe Syndrome. UCL and Dundee will study cell defects in different ways.. *The trust contributes to the Lowe Syndrome Association USA.*

The Lowe Syndrome organizes the first International Lowe Syndrome Medical Symposium at the Royal Society London

Funded and organised by the charity, the first international conference on Lowe Syndrome was held on 2nd December 2004 at The Royal Society in London, followed by a dinner at the RAC club. This historical event brought together over 50 international researchers, medical professionals and a parent to present and discuss the disease, current research underway and ideas for future projects.

UK Government

Since forming the charity has met with UK Government on many occasions to lobby the NHS to support rare diseases. Meetings have taken place with Sir John Pattison, Director of Research and Development for the NHS, his assistant director Peter Greenaway and Lord Warner, Parliamentary under secretary of state and Margaret Hodge, Minister for children.. To date, these meetings have not resulted in gaining funding for research or any support. Further written communication is on-going via the office of Tony Blair.

Lowe Scientific Advisory Board

The Lowe Scientific Advisory Board was established by the Chair (Lorraine Thomas) by searching through medical journals, internet and research bodies. The Board are voluntary and meet twice yearly at Great Ormond Street Hospital. They also organize peer reviews of all research projects received.

Professor Bruce Caterson, Professor of Research in Orthopaedics and Biochemistry, Cardiff University

Dr Antony Norden, Addenbrookes Hospital, Cambridge

Dr William van't Hoff, Consultant Nephrologist, GOSH.

Professor Robert Unwin, Professor of Nephrology & Physiology, UCL.

Professor Shamshad Cockcroft, Department of Physiology, UCL.

Dr Philip Beales, Hon Consultant in Clinical Genetics, ICH.

Professor Peter Cullen, School of Medical Sciences, University of Bristol

Professor Mike Hanna,

Professor Robert Surtees, Great Ormond Street Hospital

Professor David Taylor Ophthalmic Surgeon, GOSH

Mike Harrison Consultant in Pediatric Dentistry, Guys Hospital London

How do we fund research?

When £50,000 is raised, a Request for Proposal is advertised in medical journals such as Nature. All applicants complete the 20 page Lowe Syndrome Trust research proposal application form and return to the charity by the closing date. The applications are then sent to the Lowe Scientific Advisory Board who send on for peer review. All reviews are then discussed and a decision as to whether to fund the project is made by Scientific Board and Trustees.

Lowe Syndrome Trust Trustees and Patrons

The Charity has also enlisted the support of top profile celebrities as Trustee and Patrons.

Jonathan Ross (Trustee)

Lorraine Thomas (Chair and Trustee)

Carolyn Mitchell (Secretary & Trustee)

Catherine McNaught (Treasurer & Trustee)

Penny Biziou (Trustee)

Tony Hadley (Patron)

Tom Conti (Patron)

Penny Lancaster (Patron)

Richard Desmond (Patron)

Richard Park (Patron)

David Prever (Patron)

Jono Coleman (Patron)

Baroness Susan Greenfield (Patron)

Sir Richard Sykes (Patron)



Tris Payne (Patron)

Lowe Syndrome Campaigns and Fundraising

The Trust relies on fundraising events to fund LST medical research. As an example, the charity organises an annual Ball, Flora Light Women's Challenge 5K fun run, London marathon, New York Marathon, film and theatre previews, Ladies who Lunch events, participation in the BBC Radio 4 Appeal, Television and Radio Appeals. Trust letter writing, company letters etc are just a part of the ongoing campaign. All can be found on our website www.lowetrust.com

- *Charity Award commendation for its work*
- *Charity of the Year with Grant Thornton*
- *Charity Featured in Daily Express, Daily Mail and OK!*
- *Woman of Achievement Good Housekeeping magazine*
- *Jonathan Ross participated on Who Wants to be a Millionaire for the Trust*
- *Jono Coleman participated on Celebrity Ready Steady Cook for the Trust*
- *Tony Hadley took part in Celebrity Italian Football for the Trust*
- *Various schools fundraising*
- *Retail stores support such as Marks and Spencer and Waitrose/John Lewis*

We need your help to help us fund medical research. The more money we raise, the quicker a cure can be found – thank you! Please contact us with your ideas or if you wish to help.

CTAS (formerly project Oscar), is the telephone provider that gives to the Lowe Syndrome Trust while saving you money on your phone bill! Every time you pick up the 'dog and bone' you will be helping to raise money for the Lowe Syndrome Trust. CAS will give £1.50 to the Lowe Syndrome Trust for every £10 you spend on calls – and you'll also be saving on your home phone bill as there's no minimum call charge.

There are no hidden charges or extras. The donation is paid from the profit element of the call cost. That's £10 from every £100 of your net call spend. (Not including VAT).

So if your spend on phonecalls is only £100 a year, we will receive TEN Pounds.

If we can get 500 Supporters we will receive in the region of 1,500 Pounds a month. This would be truly amazing and is totally achievable.

For us it is wonderful on-going monthly revenue that we can rely on. For you, you still get a first class phone service. However you are still helping us.

Its a "win-win" result.

To make it easy for you, everything is the same as BT.

The options 1, 2 and 3 are the same as BT.

The quality of service is the same as BT.

The call charges are exactly the same as BT.

The free calls are exactly the same as BT.

And it does not cost you anything to switch to CTAS.

Every month we will inform you on your bill how much you have donated to us. As every pound counts..

So ask for a Free Post form or sign up on line on

<http://www.charitytelephoneaffinityscheme.org.uk/> Make sure you select us as your charity of choice!!!

Why don't you just try it for three months. There is no obligation, but we really do need your support.

Thank you for doing this for us.

*Lorraine Thomas
lowetrust@homechoice.co.uk
www.lowetrust.com
0208 458 6791*

The Trust would like to take this opportunity of thanking the Lowe Scientific Advisory Board, Trustees, Patrons, Judith Kilborne, Sue Montgomery and Beilul (for their help in the office), supporters, sponsors, donators and friends of the charity for their continued commitment to helping raise funds for medical research.