

MEDI-IMMUNE

Groundbreaking Protection & Immunity

COMBATING

Pandemics

Airborne Outbreaks

Bioterrorism

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Protecting Individuals and Populations

IMMEDIATE PROTECTION

Inocul-Air® is designed to be a compact, wearable, filter free breathing device that protects the wearer from any airborne pathogens (e.g. influenza, MERS, SARS, TB, anthrax, etc.) even mutations that can render vaccines and other therapeutics ineffective.

Immunity without a vaccine

ONGOING PROTECTION

Inocul-Air® not only protects the wearer from immediate and direct exposure to airborne pathogens but also activates the individual's immune system to provide long term protection.

NB: All references to Inocul-Air® throughout this website refer to its function when combined with a filter free face mask.



THE IDEA

If there is something really nasty out there, you will want to reach for wearable protective devices for all your family and friends.

The face mask prevents the wearer from being exposed to air that has not gone through the sterilizing chamber. The wearer can breathe normally, go about their daily tasks in safety and, if exposed to airborne pathogens, will begin to build immunity.

What have we learned?

WHAT DOES HISTORY TELL US ABOUT THE DANGERS?

1918: SPANISH FLU

Infected an estimated 500 million people worldwide, approximately one third of the world population, and killed between 20 and 50 million people.

In 1918 it spread much more slowly than it would today with our current global travel patterns.

2009-2010: SWINE FLU

Had this been a more dangerous virus, the death toll would have been much higher than the actual 18,500 deaths. Products that could do little to protect, sold out on the internet, which shows how frightened people were.

It took nearly 8 months for vaccines to be produced and become generally available.



THE THREAT

“A fast-moving airborne pathogen could kill more than 30 million people in less than a year”

BILL GATES



What are we currently relying on?

Governments know that pandemics, bioterrorism and outbreaks are critical issues. Many are working hard and co-operating internationally to:

- Put strategic plans in place
- Conduct studies
- Stockpile anti-virals and personal protective equipment for first responders
- Provide advice for the general public (e.g. “Catch it, Bin it, Kill it”)

They are doing what they can with existing technology. Governments know that this is not nearly enough. To a large extent, they will tell us that we need to be self-reliant but this is not easy against **an invisible enemy.**



Whatever the cause of an outbreak ...

You will want to be able to act fast to stay safe and to protect others.

If the outbreak is of long duration, everyone will need to return to work and go about their daily lives or infrastructures will break down and economies collapse ... **you will need to feel safe to go to work.**

A survey in the UK published in BMC Public Health 2009 suggested that up to 85% of healthcare workers might not go to work in a pandemic.

**“85% of
healthcare
workers might not
go to work in a
pandemic”**

The world must be ready when it happens again...

In the critical first few months of an outbreak, when vaccines will be unavailable, other means of protection from infection will be needed, especially for first response teams and healthcare professionals

Medi-Immune's objective was to protect people from the immediate danger of any airborne pathogens and to initiate their body's own immune response for long-term protection. The concept was that inhaled air containing airborne pathogens would pass through a compact, wearable sterilizing chamber, connected to the wearer's face mask. The sterilized pathogens would then penetrate deep into the airways of the wearer initiating an immune response.

The Medi-Immune Inocul-Air® technology, has met these objectives, confirmed by tests at Public Health England, Porton Down. The results, exceeded expectations and an unexpected outcome is the subject of a new patent application. The intellectual property is protected by a family of patents.



BEING READY

Inocul-Air®

Inocul-Air® is designed to be a compact, wearable, filter free, breathing device that sterilizes inhaled air, providing immediate protection against airborne pathogens (e.g. influenza, MERS, SARS, TB, anthrax etc.). The sterilized pathogens initiate an immune response in the airways, to provide ongoing protection.

If the pathogens have not yet been identified or if they are mutations of known pathogens, Inocul-Air® will still protect and initiate an immune response. This will allow time for the identification of the pathogen and then the production of a vaccine which can take many months.



WHO WILL BENEFIT?

Who will benefit from the use of Inocul-Air®?

IN A PANDEMIC

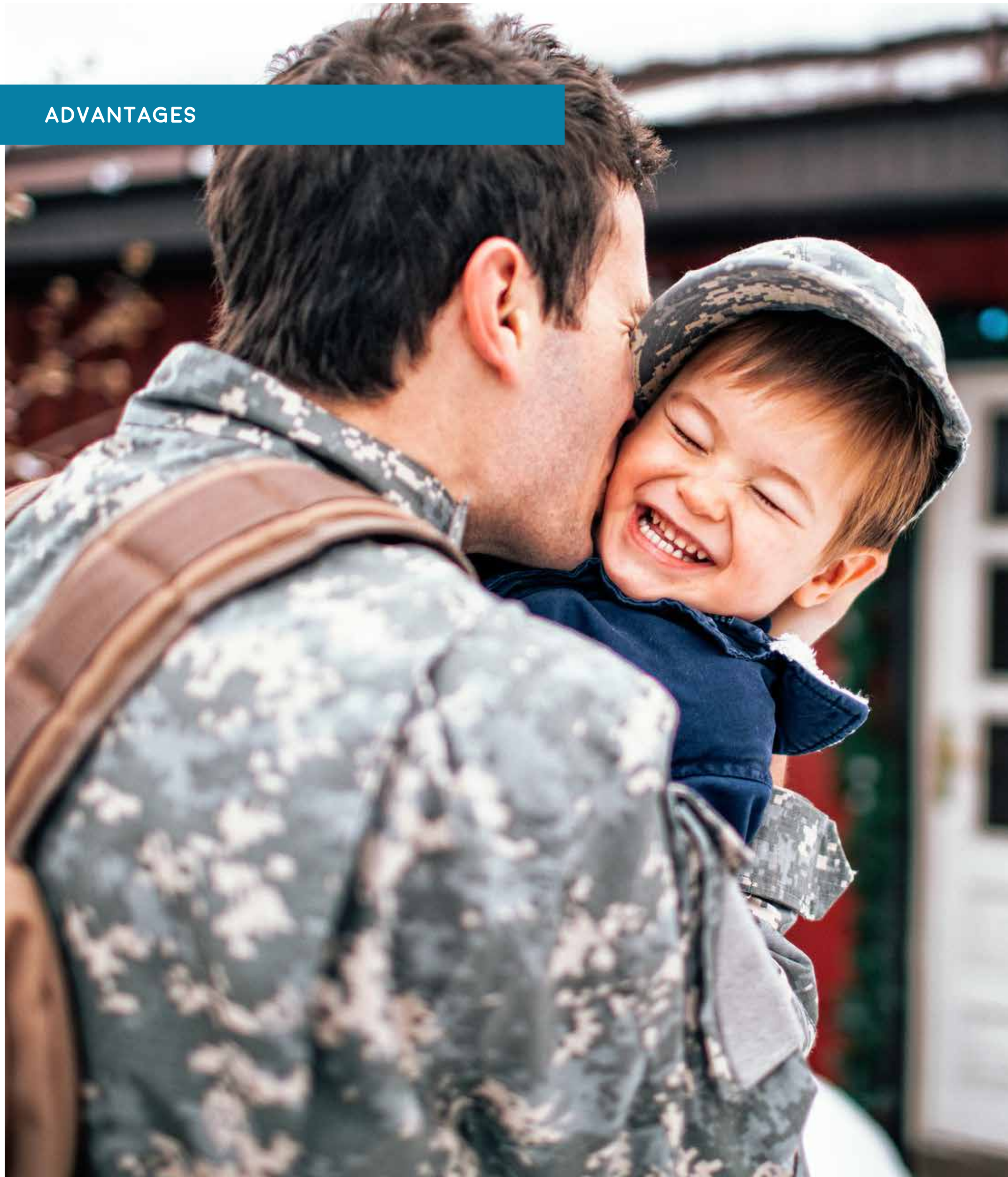
- First responders
- Paramedics
- Police
- Fire & Rescue
- Military
- Health professionals
- Support staff in hospitals
- All public servants
- Essential services workers
- People with compromised immune systems
- The general public

IN AN OUTBREAK

In an outbreak, where the airborne pathogen is unknown or known but mutating, Inocul-Air® will protect any of the people involved in containing the outbreak together with the general public.

IN CASE OF BIOTERRORISM:

If an airborne pathogen, such as anthrax, is deliberately released, protection will be needed by first responders, military personnel, and any of the general public in the area.



What are the advantages of the Inocul-Air® technology?

- Immediate and high protection performance
- It is easy for the wearer to breathe, even under exertion
- One device will protect against all known and unknown airborne pathogens, which vaccines cannot do
- It will initiate an immune response in the wearer, when pathogens are present, removing the need to wait for vaccine production
- It is re-useable and can be designed to be worn all day, if necessary
- It is battery or mains operated
- There are no filters to clog or change and therefore no concerns about safe disposal

The Science

Medi-Immune's Inocul-Air® technology uses UVC to sterilize any airborne pathogens being inhaled by the wearer of a device using this technology. The air passes through a compact portable irradiation chamber which has been engineered so that, for a low input of power, a high dose of UVC is delivered. At normal breathing rates, in excess of a log 10 reduction in viable Influenza A viral particles is achieved, i.e. less than 1 in 10,000,000,000 remains viable.

Energetic UVC photons pass through micro-organisms damaging their nucleic acid (RNA or DNA) which effectively disables their ability to reproduce. All published data confirm that UVC is an effective germicidal process [1, 2].

Using the published sensitivity data, Medi-Immune is confident that their Inocul-Air® technology applies to all airborne pathogens.

Medi-Immune's Inocul-Air® technology does not use a filter.

Filtration facemasks are ineffective in protecting against airborne pathogens because the pressure drop across the filter is such that, even with very careful fitting, leaks occur at the interface between the mask and the wearer's face [3].

Additional drawbacks with filtration systems are that, over time, the filters become blocked and contaminated. The first reduces their effectiveness and increases their air resistance. The second requires careful disposal.

Because Medi-Immune's Inocul-Air® technology does not use a filter, it allows any disabled airborne pathogens to be delivered to the mucosa of the respiratory tract of the wearer. These disabled pathogens act as vaccines and initiate an immune response in the wearer. >>>

>>> Published data has compared the effectiveness of intramuscular vaccination to vaccines delivered to the mucosal surfaces of the respiratory tract/system. The results show that the latter delivers better protection than the former [4].

Medi-Immune's Inocul-Air® technology sterilizes airborne pathogens and it is these sterilized pathogens which initiate an effective immune response against those specific pathogens to which the wearer is exposed.

Tests, on Medi-Immune's Inocul-Air® technology, carried out by Public Health England, Porton Down, have validated both the protection and the immune system activation functionality.

The Medi-Immune Intellectual Property is protected by a family of patents. Further patent applications have been registered.

References

- 1 - Philp W Brickner, et al, The Application of Ultraviolet Germicidal Irradiation to Control the Transmission of Airborne Diseases: Bio-terrorism Countermeasures, Public Health Reports, 1st March 2003 <http://journals.sagepub.com/doi/abs/10.1093/phr/118.2.99?journalCode=phrg&>
- 2 - Nicholas G Reed, The History of Ultraviolet Germicidal Irradiation for Air Disinfection, Public Health Reports, Jan-Feb 2010 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2789813/>
- 3 - Jeff Charlton, Pandemic Planning: A Review of Respirator and Mask Protection Levels, Disaster Advice, undated <http://www.continuitycentral.com/respiratorreview.pdf>
- 4 - Igor M Belyakov and Jeffrey D Ahlers, What Role Does the Route of Immunization Play in the Generation of Protective Immunity against Mucosal Pathogens?, The Journal of Immunology, 1st December 2009. <http://www.jimmunol.org/content/183/11/6883>

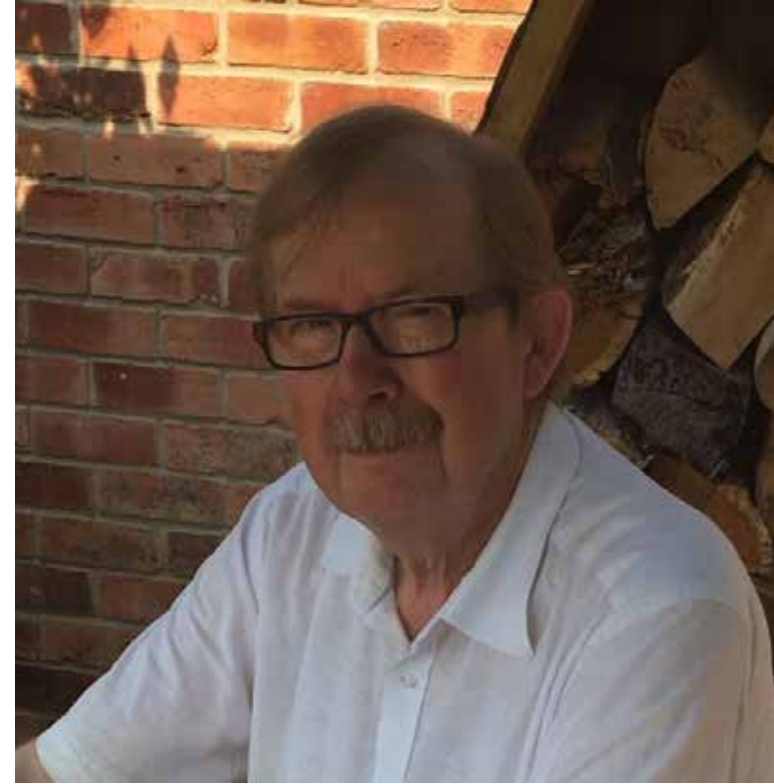


“Deadly pathogens are the “next big thing” in terror. It’s going to be a defense problem, they will be used in war. They will be used in terrorism.”

ASHTON CARTER



THE TEAM



James Love - Director

James is a chartered mechanical engineer, who graduated from Imperial College London. He is an innovative engineer, and problem solver, whose recent focus has been on medical device concept design and medical device regulatory compliance.



John James - Director

John has a long history of innovation and creative design and the development of software systems and applications for use in different sectors including pharmaceutical, defence, electronic and medical. His recent focus has been on the creation and application of UVC in devices, in the medical sector



John Maudsley - Director

John is an immunologist with a BSc and PhD from University College London. He spent some years in immunology research at Warwick University, within the Virus Group. His focus over many years has been on the development of cancer vaccines



Tim Bretherick – Director and Chairman

Tim qualified as an accountant with MAB. For many years he has been running his own successful consulting business specialising in all aspects of Facilities Management. Tim came on board as an investor to support the development of a novel concept.



John Willcocks - Consultant

John's early career was in major IT companies and since 1982 he has run his own businesses, working within blue chip organisations, around the globe, delivering management development programmes. He is a skilled communicator at all levels.



Robert Foley – Director

Robert graduated from Essex University, with an MSc in pure and applied mathematics. He now lives in the United States, having moved there when working for GE. He built up his own computer service company, which he sold very successfully in 2007, remaining CEO until 2009. He is now a private investor.

Medi-Immune Inocul-Air® technology:

Can protect individuals and populations and give immunity without vaccines...

... because we know that there will be further pandemics and outbreaks of deadly airborne infections.

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