

# Surviving Anthrax with “Instant Immunity™”

## Dual Antibody Approach for the Treatment of Anthrax

### Anthrax

*Bacillus anthracis* is able to cause infection via the aerosol route and has a mortality rate in untreated individuals of >80%. To date post-exposure treatment options are limited and antibiotics can be effective in killing the bacterium, but will not neutralize the Lethal Toxin produced by the bacterium. The Lethal Toxin will be fatal even when the bacterium has been removed with antibiotics. For this reason, an NIH panel of experts on anthrax has recommended that neutralization of the anthrax toxin is an absolute requirement for successful treatment of anthrax. Human monoclonal antibodies are ideal candidates for the neutralization of the toxin. Preferably, these antibodies should be directed against different toxin epitopes or even different toxin components.

### Anthrax Lethal Toxin

The most deadly form of anthrax is contracted through the inhalation of spores of *B. anthracis*. These spores will enter the macrophages, germinate and start to produce the Lethal Toxin, the major killing factor. The toxin consists of Protective Antigen (PA) and Lethal Factor (LF). PA binds a receptor on the host macrophage surface and enters the macrophage's endosomes in combination with LF. Once inside, the LF causes lysis of the host cells. In case of an anthrax infection, lysis will happen to many cells at the same time and create a massive inflammation. The associated cytokine storm will kill the infected person.

### Dual Antibody Approach

The chance of survival can be increased significantly when the toxin is neutralized with human monoclonal antibodies (humAbs). Preferably the humAbs are directed against several components of the toxin, in order to increase the chance of survival and decrease the chance of circumvention or insensitivity caused by minor variations in the toxin.

IQ Therapeutics has developed two humAbs, directed against PA and LF. It has been proven in pre-clinical studies that the combination is significantly more effective against the toxin and infection than single humAbs. Significantly more effective chance of survival represents less fatalities.

With current treatment it is essential to be treated directly upon infection, usually within hours and before the first symptoms of illness occur. As demonstrated in pre-clinical studies, IQ Therapeutics' dual antibody approach creates an extended window of treatment: rabbits treated several hours after the first symptoms have a significantly increased chance of survival over current treatment.

### DUAL ANTIBODY APPROACH:

- Improves chance of neutralizing toxin
- Extends treatment window
- Less sensitive to mutations
- Improves chance of survival
- Helps saving lives

### Conclusion

Several companies have developed human antibodies against PA. IQ Therapeutics has developed human antibodies against two targets of the toxin, PA and LF. The superior results of the dual antibody approach; higher degree of protection and extension of the treatment window, fully support the opinion and advice of the NIH expert panel. The dual antibody approach can help in saving lives.

