
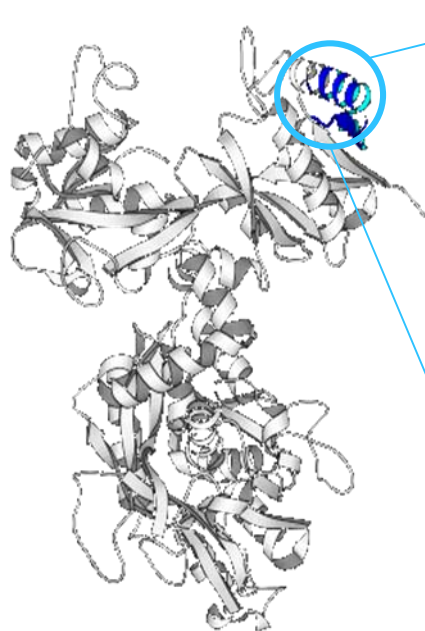


Lytix Biopharma 
...improving nature's own
defense mechanisms

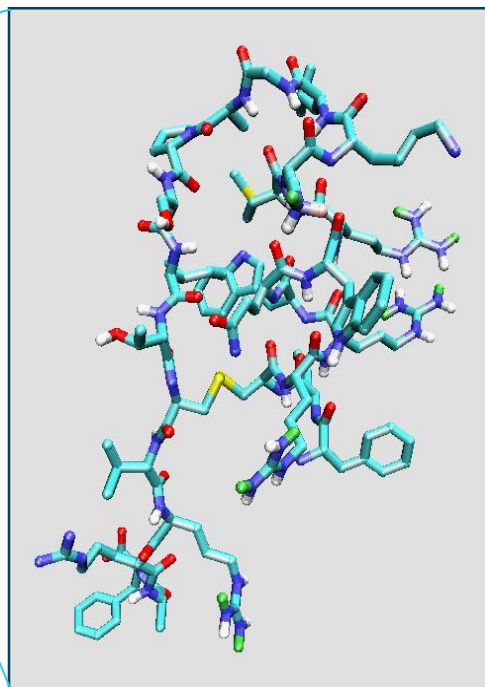
LTX-109

August 2013

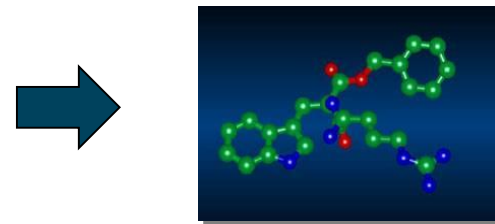
Lytix Biopharma scientific background



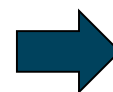
Lactoferrin



Lactoferricin



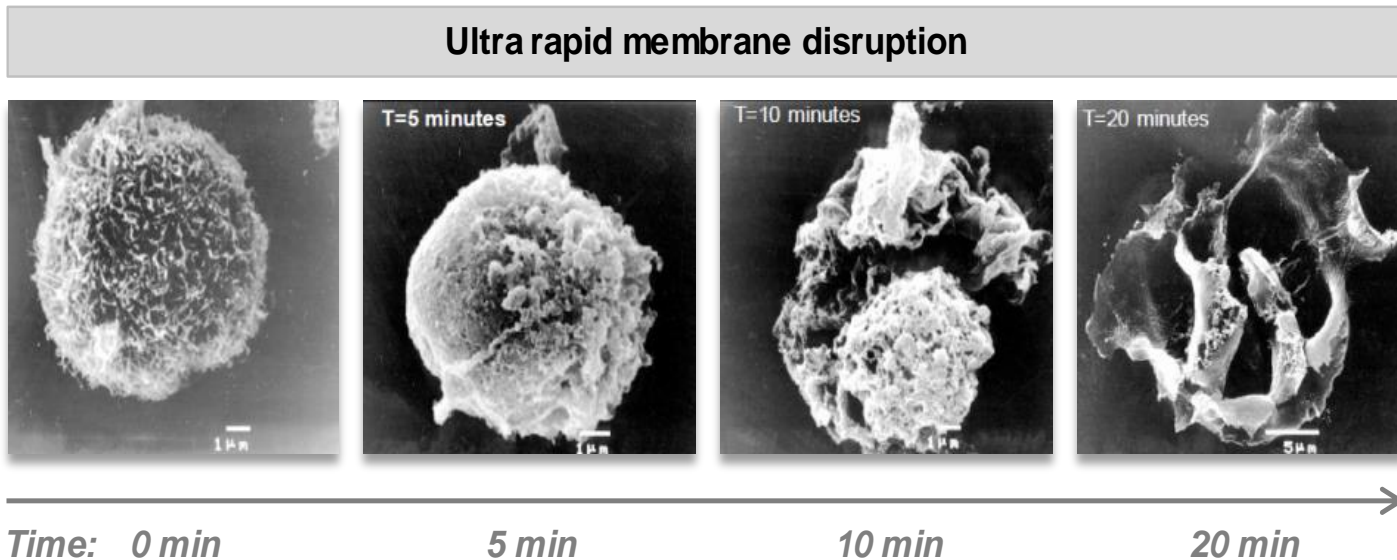
LTX-109 (infection)



LTX-315 (cancer)

- The lactoferrin protein is found in milk and is known to have direct anti-microbial activity and cancer immune modulatory effects
- Structure-activity-relationship studies have resulted in the design of two optimal molecules originating from the Company's technology platform; the anti-infective drug LTX-109 and the cancer immune therapeutic drug LTX-315

Highly efficient peptides

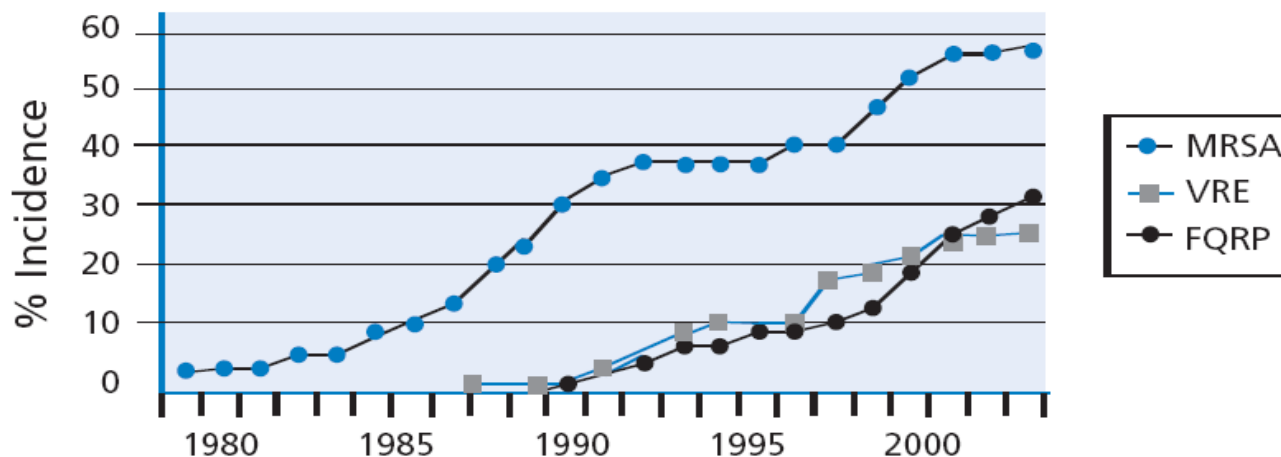


- Host defence peptides form the cornerstone of the body's protection against a broad spectrum of harmful micro-organisms
- Some host defence peptides kill micro-organisms by direct disruption of the cell membrane (lysis). Such lytic peptides represent a novel class of drugs
- More recent research has shown that some host defence peptides have powerful anti-cancer effects. These peptides induce release of danger signals and tumor associated antigens (TAAs) from the tumor leading to protective immune responses

Significant commercial potential for LTX-109

- Global sales of topical antibacterials estimated to USD 982m in 2010¹ (primarily Bactroban and Fucidin)
- Main product in market, Mupirocin, is used for skin infections and nasal decolonization
 - Total EU, US and JP sales 2012 of USD 190m²
 - As current treatment induces resistance, considerable potential is identified for increased sales in pre operative decolonization segment
- Bacterial resistance to antibiotics is a global and increasing problem
- Incidence of MRSA (meticillin-resistant *Staphylococcus aureus*) is increasing
 - Anticipated 20,000 deaths in the US due to MRSA
 - Compared to 10,000 deaths caused by HIV
 - Few novel antibiotics have been developed over the last decades

Rapid spread of antibiotic-resistant bacteria in the US



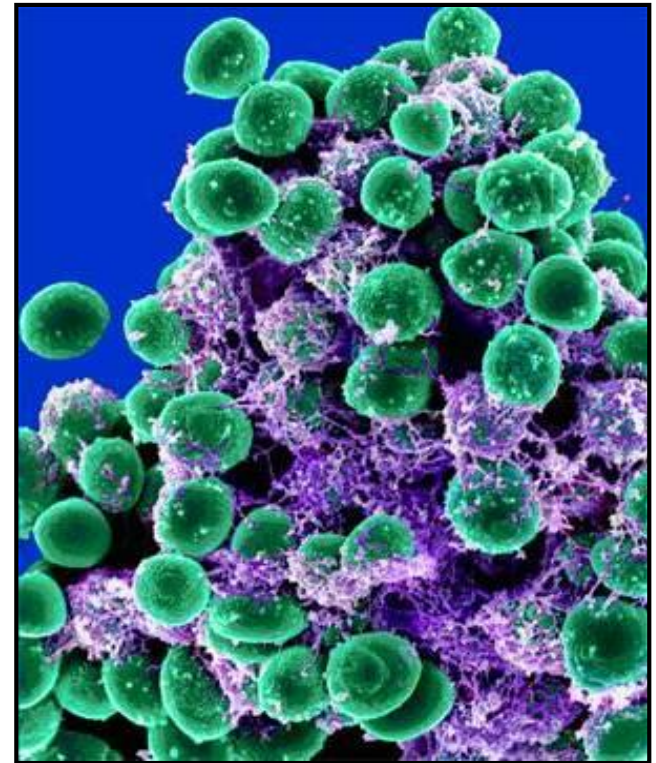
Source: Surveillance data from CDC (Centre for Disease Control, USA) – MRSA, methicillin-resistant *Staphylococcus aureus*; VRE, vancomycin-resistant Enterococcus; FQRP, fluoroquinolone-resistant *Pseudomonas aeruginosa* (“Bad Bugs, No Drugs Whitepaper”, IDSA 2004)

1) Source: Visiongain, 2012

2) IMS ex. Manufacturing sales 2012

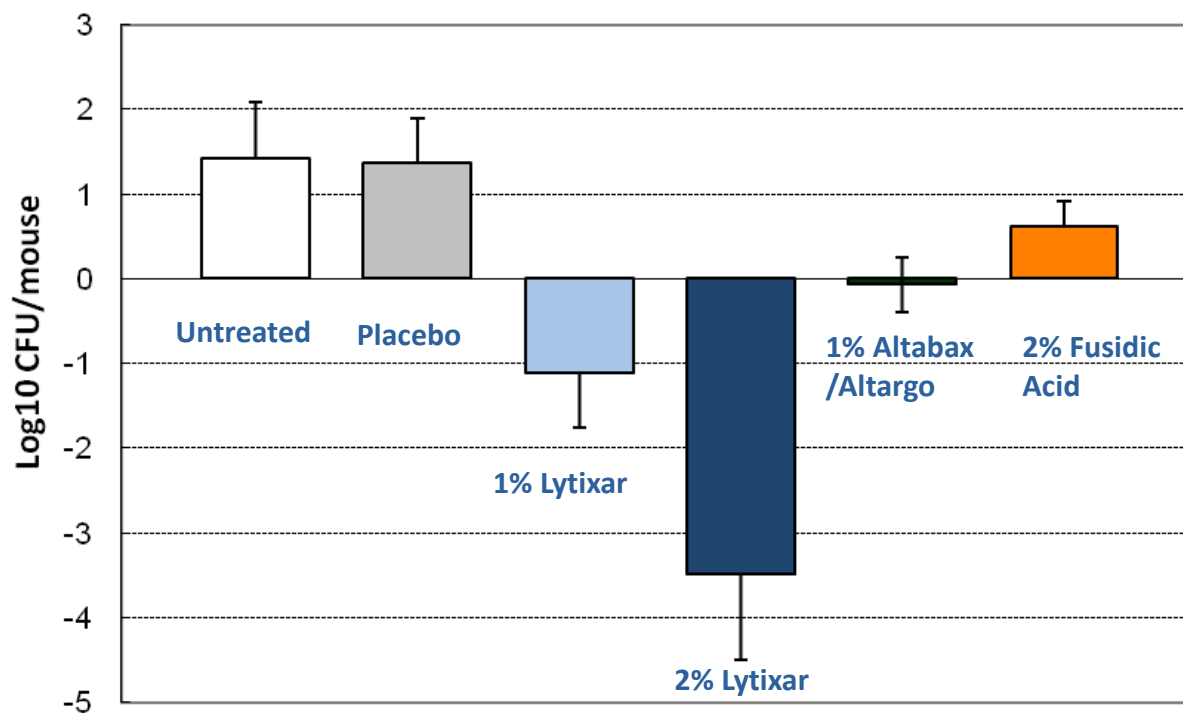
LTX-109 is a well-documented drug candidate

- ✓ Fast acting, bactericidal antimicrobial drug
- ✓ Broad spectrum of activity
- ✓ Low propensity for resistance development
- ✓ Effective against multi-drug resistant bacteria
- ✓ Effective against biofilms



In-vivo animal studies:

LTX-109 kills MRSA better than Gold Standard drugs



- Murine skin infection model (tape-stripping, ATCC 33591)
- Read-out is bacterial growth +9 hours after the first of 3 doses

Project status LTX-109

- ✓ Phase I in healthy volunteers completed
- ✓ Phase I/IIa pilot study in Gram+ skin infections completed
- ✓ Phase I/IIa pilot study nasal decolonisation completed

Focus in 2013 and 2014

- Phase II PoC in impetigo
- Active dialog with potential partners

Impetigo – «milk blotch» in children

- *Impetigo*
 - *Staphylococcus aureus* and *Streptococcus pyogenes*
 - Pediatric disease
 - Incidence in 2-4 years old children
 - ~3 % UK
 - 12-25% in warmer humid climates

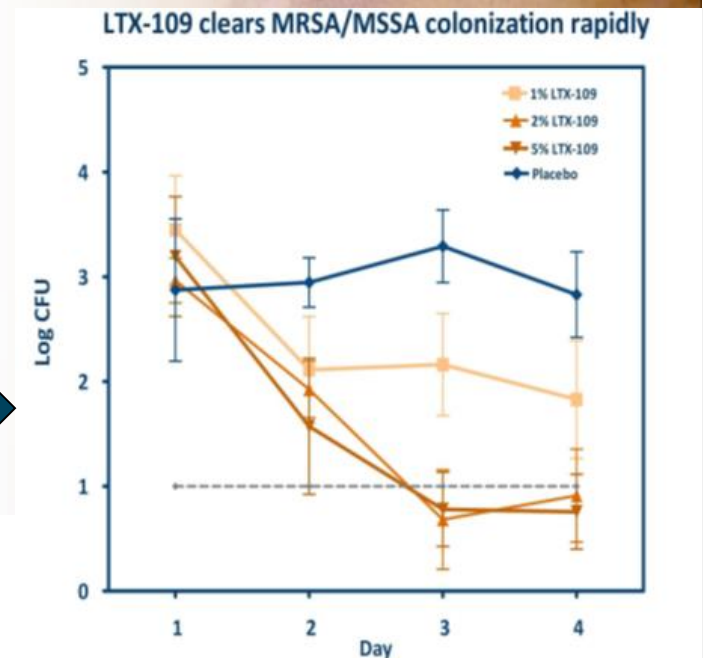
- *Medical need*
 - Increasing resistance to existing antibiotics (Fucidin and Bactroban)
 - Convenience of shorter treatment regimen



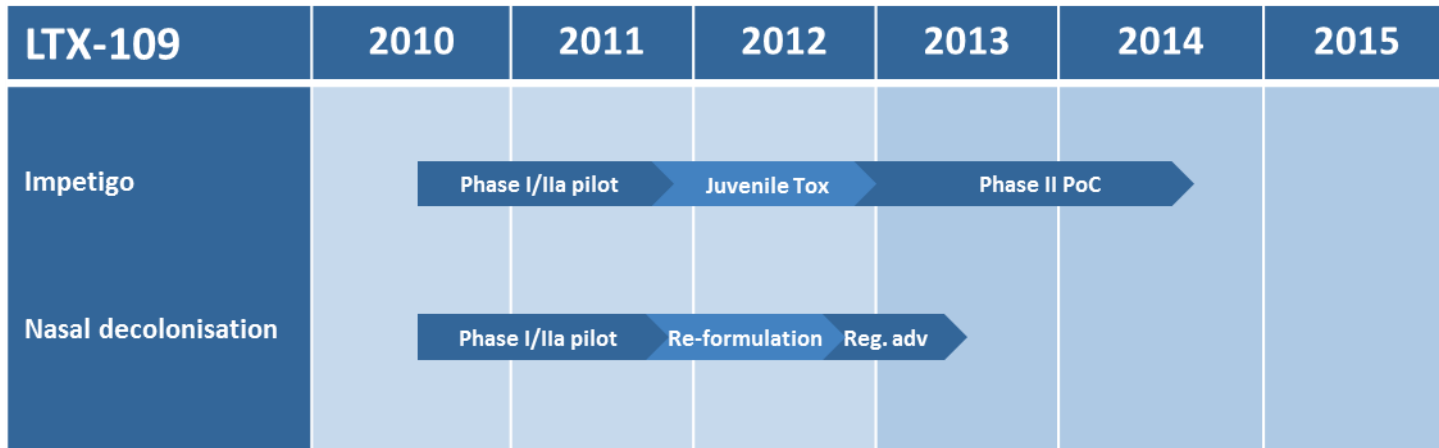
Nasal decolonisation

- *Medical need*
 - *Staphylococcus aureus* are prevalent colonisers and the most common cause of hospital infections
 - MRSA (methicillin-resistant *S. aureus*) has become endemic in health care institutions worldwide, with up to 70% of invasive *S. aureus* infections having resistance
 - Short-term presurgical eradication of MRSA carriage:
 - Prevention of infection
 - Prevention of transmission

LTX-109 has the potential of effectively prevent *S. aureus* infections without succumbing to bacterial resistance



LTX-109 development milestones



- Phase II Proof of Concept study in impetigo is ongoing. Results expected first half of 2014
- Discussions with potential partners in the area of dermatology and topical infections are ongoing
- Effective killing of bacteria in the nose in a Phase I/IIa study. Results attracted great interest from leading clinicians in the field.
- Proof of Principle established in complicated wounds animal model

Lytix Biopharma AS - www.lytixbiopharma.com

