

United States Department of

Health & Human Services

**Office of the Assistant Secretary for Preparedness & Response (ASPR)
Biomedical Advanced Research & Development Authority (BARDA)**



Broad Spectrum Antimicrobial Program

Biomedical Advanced Research and Development Authority

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Office of the Assistant Secretary for Preparedness and Response

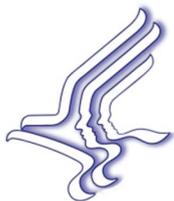
October 17, 2011



Public Health Need



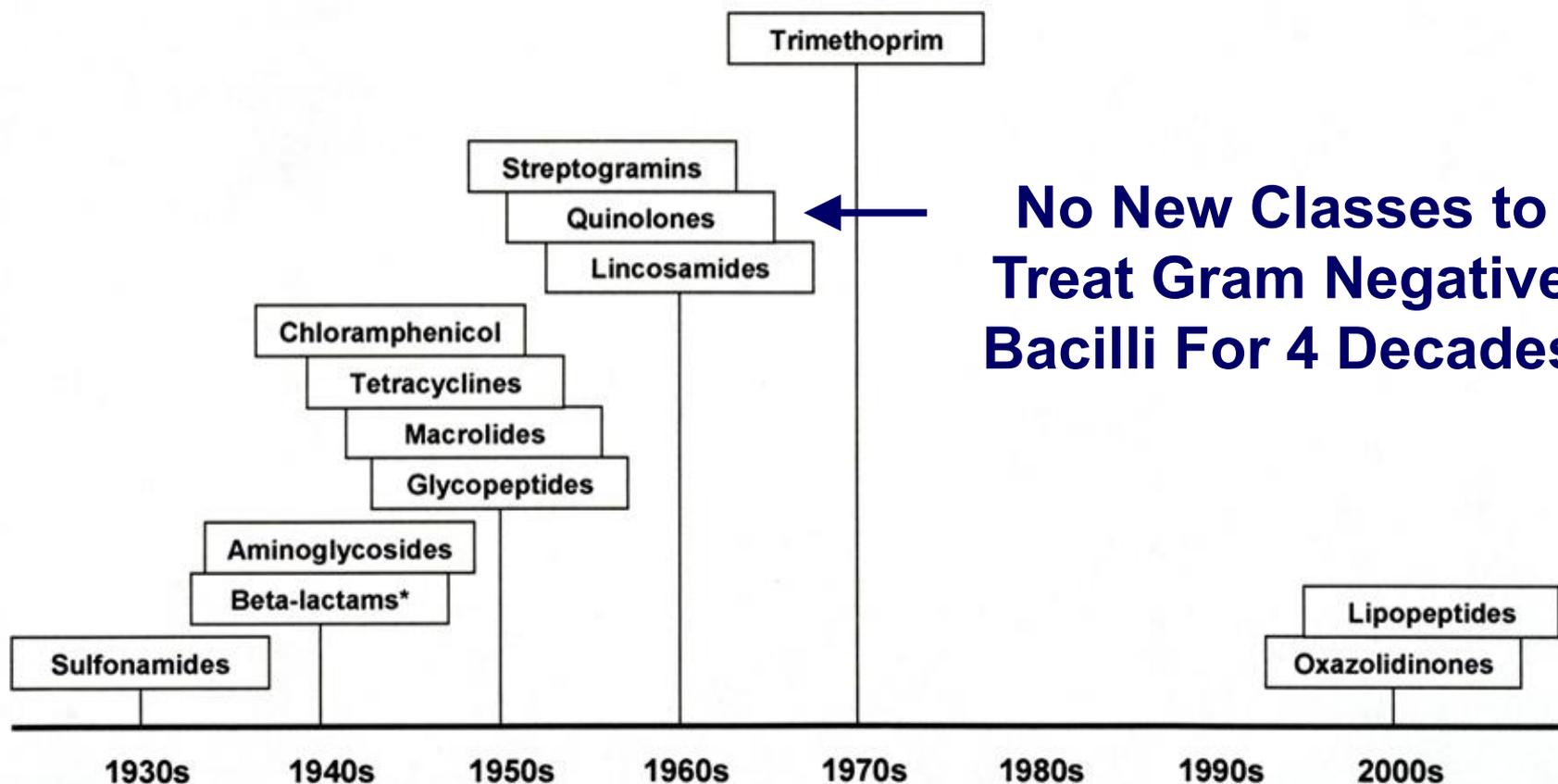
- **US hospital-acquired bacterial infections**
 - 2 million per year
 - 90,000 deaths
- **Antibiotic resistance cost the health care system more than \$8 billion in 2006**
- **Resistance leads to untreatable infections**
 - MDR ESKAPE pathogens
 - MRSA
- **Large Pharma has largely abandoned R&D investment in antimicrobials**



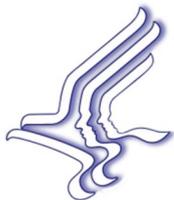
Novel Product Launches



Figure 1. Discovery of new classes of antibiotics.



No New Classes to Treat Gram Negative Bacilli For 4 Decades



Broad Spectrum Antimicrobial Program Objectives



- **Re-vitalize the antimicrobial drug pipeline through government support of advanced research and development**
- **Generate treatment options in the event of an attack with a bacterial or viral threat agent**





Strategy



- **Public-private partnerships with large and small pharmaceutical and biotechnology companies**
- **Develop antimicrobial drugs (antiviral or antibacterial) for biodefense and clinically prevalent infectious disease indications – mitigate developmental risk for biothreat indications**
- **Develop animal models which recapitulate the disease observed in humans for pathogens of interest**



Accomplishments



- **Program established April 2010**
- **New Public Private Partnerships**
 - **Achaogen** – Next generation aminoglycoside antibiotic
 - **GlaxoSmithKline** – Novel leucyl tRNA-synthetase inhibitor
 - **Chimerix** – Broad Spectrum Antiviral
- **Project Bioshield procurement contract with SIGA for smallpox antiviral**
- **BARDA invited to participate on the Interagency Task Force for Antimicrobial Resistance**



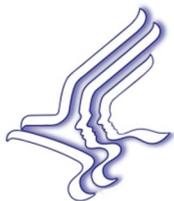
Plazomicin



- BARDA contract (Aug. 2010) to Achaogen to develop a ACHN-490 (Plazomicin)
- Biodefense indications: plague and tularemia
- Hospital-acquired infection indications: complicated Urinary Tract Infection (UTI), Hospital/Ventilator Acquired Pneumonia (HAP/VAP)
- Overcomes resistance mechanisms that defeat commonly used aminoglycosides

ACHAAGEN

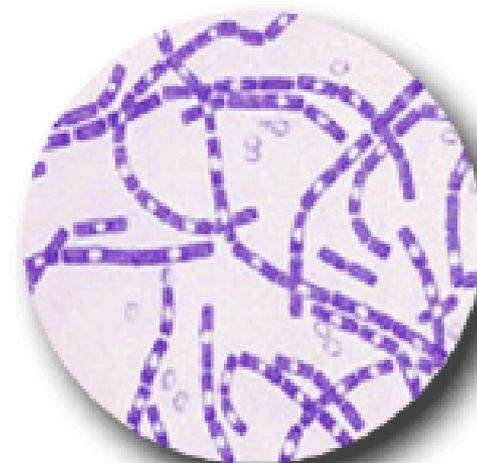


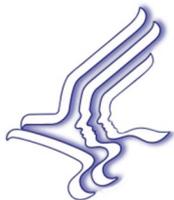


GSK052



- BARDA contract (\$94M) for the development of a novel class of antibiotic
- Biodefense indications: anthrax, plague, and tularemia
- Hospital-acquired infections indications: complicated intra-abdominal infection, HAP/VAP, complicated UTI
- Drug candidate is first novel antimicrobial to treat hospital acquired Gram (-) in 40 years
- \$50M dedicated to Phase III cIAI study (cost sharing)





CMX-001



- BARDA awarded contract (Feb. 2011) to Chimerix to develop a smallpox antiviral, CMX-001
- Biodefense indications: treatment of smallpox infection
- Commercial indications: treatment of dsDNA virus infection in severely immunocompromised patients





ST-246



- BARDA awarded contract (May 2011) to SIGA technologies for the procurement of 1.7M treatment courses of the smallpox antiviral, ST-246
- Biodefense indications: treatment of smallpox infection (post-lesional)
- Commercial indications: None
- Viral egress inhibitor
- Contract activities include clinical, non-clinical, and commercial scale manufacturing activities
- BARDA awarded contract (April 2011) to SIGA technologies for the development of an IV formulation of ST-246 and determination of PEP efficacy





Areas of Interest



- **Novel antimicrobials with broad spectrum activity (more than 2 threat agents of interest)**
 - Post exposure or treatment
 - Multiple formulations seen as an advantage
 - Concurrent commercial development viewed as a strength
- **Antivirals for the variola virus, filovirus, and arenavirus infection/exposure**
- **Products capable of making significant positive impacts in addressing biological threat agents, as well as antimicrobial resistance**



Interacting with BARDA



• The Application Process

- Phase I is a white paper
- Reviewed quarterly
- Invite/Do Not Invite for a Full Proposal
- Feedback and templates provided for Phase II Invitees
 - Chance for a face to face meeting or telecon to clarify items prior to proposal submission
- Phase II proposal submission (~100 pages)
- Proposal reviewed; notification sent to offeror
 - Cat I-Cat III designation
- Proceed to contract negotiations
- Average time to contract award : 263 business days
 - BSA contracts: ~180 business days





Practical Considerations



- Efficacy needs to be demonstrated for periods of time *after* pathogen exposure and for dosing regimes that could accommodate drug delivery in an emergency situation
 - Propose testing models to failure
- Protection against disease needs to include prevention of relapse after therapy concludes
- Efficacy tests need a comparator and the comparison model should extend back into *in vitro* and proof of concept experimental design
- Drug synthesis should involve reagents, synthesis steps, and purification requirements that are not unrealistic for a commercial drug.



BSA Program



- **What to expect working with the BSA Program:**
 - Government Contract — NOT a Grant
 - Quality Technical Oversight
 - Involvement
 - Reporting
 - Frequent Communication and Feedback
 - EVMS
 - COA Process



What to expect working with BARDA



- **Core Services**

- Animal Model Development
- Product Testing
- Manufacturing
- Subject Matter Expertise
 - Clinical
 - Manufacturing
 - Regulatory and Quality Affairs
 - Earned Value Management
 - Non-clinical (Animal Rule)



Forecast



- **BARDA will continue to support the development of novel antimicrobials for the treatment and prevention of biological threat agent infection while concurrently addressing the growing public health threat of antimicrobial resistance**
- **BARDA will seek partnership opportunities with companies to bolster antimicrobial development and mitigate risk for biodefense drug development**
- **Additional projects expected in FY12**



Interfacing with BARDA

- www.phe.gov
 - Program description, information, news, announcements
- www.medicalcountermeasures.gov
 - Portal to BARDA
 - Register, request a meeting
 - Tech Watch
- www.fedbizopps.gov
 - Official announcements and detailed information about all government contract solicitations
 - BARDA BAA: BARDA-CBRN-BAA-11-SOL-00009



**Technical POC for Research Area #3: Antimicrobial Drugs:
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