Radha Rangarajan  
Technology Business Incubator, University of Hyderabad, Hyderabad, India

Vitas Pharma has a portfolio of four preclinical stage programs. The compounds disable critical pathways in bacteria through novel chemical scaffolds, identified using structure based drug design tools.

### VT-01: Gram negative

**Key features:**
- Lead optimized candidate with potent in vitro activity against MRSA global clinical isolates
- Potent biofilm prevention activity
- Low mutation frequency and low mutation prevention concentrations
- Efficacy established in 2 in vivo models
- i.v./oral switchability established
- Safety established in rodent and non-rodent species (non-GLP)

**Differentiation:**
- Potency and novel chemical scaffold
- Overcomes multidrug resistance, including resistance to last line drugs
- i.v./oral switchability
- Safety and specificity for *S. aureus* may enable long term antibiotic use

### VT-02: MRSA specific

**Key features:**
- Lead optimized candidate with potent in vitro activity against MRSA global clinical isolates
- Potent biofilm prevention activity
- Low mutation frequency and low mutation prevention concentrations
- Efficacy established in 2 in vivo models
- i.v./oral switchability established
- Safety established in rodent and non-rodent species (non-GLP)

**Differentiation:**
- Potency and novel chemical scaffold
- Overcomes multidrug resistance, including resistance to last line drugs
- i.v./oral switchability
- Safety and specificity for *S. aureus* may enable long term antibiotic use

### VT-03: Broad spectrum

**Key features:**
- Lead series with broad spectrum activity against MDR clinical isolates: Gram positive and Gram negative
- Activity against *Acinetobacter* is noteworthy
- Series has low mutation frequency and low mutation prevention concentrations
- i.v. only as well as i.v./oral series are being optimized
- In vivo activity in the primary infection model has been demonstrated

**Differentiation:**
- Gram negative activity against Carbapenem resistant clinical isolates
- Clinically validated target
- i.v./oral switchability

### VT-05: Combination

**Key features:**
- Synergistic combination with activity against Carbapenem resistant Gram negative isolates
- Novel mechanism of action
- Co-formulation for ease of use

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### Vitas Proprietary Screening Platform: Overcoming resistance and reducing propensity for resistance development

- **Targets selected by Vitas**
  - Novel or clinically validated
  - Essential for viability
  - Availability of crystal structure
  - Animal PoC

- **Compound library**
  - Novel
  - Patentable

- **Common platform for testing biological activity**

- **SGDD**
  - Custom built in silico libraries
  - Hybrids of reported compounds and commercially available building blocks
  - Docking and selection of compounds with best fit
  - SAR to optimize activity

- **Target specificity:**
  - Cell based and cell free assays
  - Minimum Inhibitory Concentrations in clinical isolates
  - Time kills studies
  - Mutation frequency tests
  - Mutation prevention concentrations