

A RAPID TEST FOR SUSCEPTIBILITY TO BACTERIOSTATIC & BACTERICIDAL ANTIBIOTICS

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INTRODUCTION

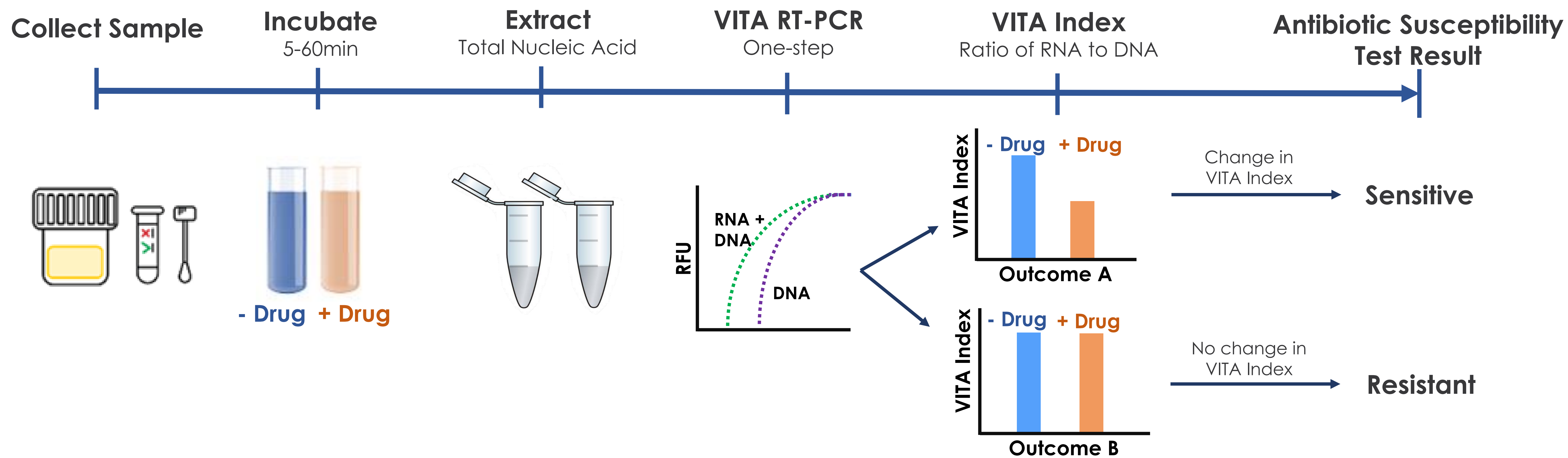
- ▶ **VITApex** is a molecular-phenotypic test
- ▶ Measures pathogen's transcriptional response to multiple antibiotics after short incubation
- ▶ VITA Index is the ratio between copy number of informative gene and transcripts, compared to those of non-expressed DNA
- ▶ VITA Index allows prediction of pan-antibiotic susceptibility
- ▶ Accuracy is independent of the quality/quantity of specimen

METHODS

- ▶ Model system; four lab-derived strains of *Chlamydia trachomatis*. Minimum Inhibitory Concentrations (MIC) of each strain pre-determined for azithromycin, doxycycline and rifampicin
- ▶ Strains incubated with and without antibiotics (0.256 µg/ml) for one hour
- ▶ Total nucleic acid extracted and targets amplified in single well VITA RT-PCR multiplex
- ▶ Cq values used to calculate VITA Index

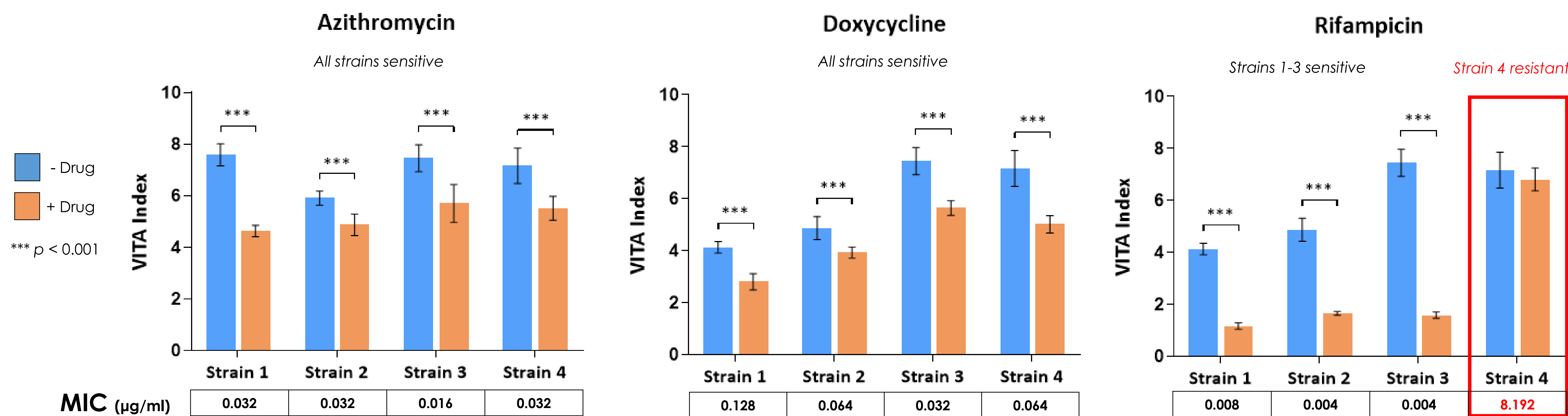
RESULTS

- ▶ VITA Indices of sensitive strains were significantly lower ($p < 0.001$) in the presence of antibiotic compared to no drug control
 - Strains 1-4 were sensitive to azithromycin and doxycycline
 - Strains 1-3 were sensitive to rifampicin, strain 4 was resistant
- ▶ No significant change in VITA Index for resistant strain



VITApex

A RAPID, MOLECULAR-PHENOTYPIC, PAN-ANTIBIOTIC SUSCEPTIBILITY TEST



CONCLUSIONS

- ▶ Rapid – susceptibility profile of chlamydia determined after a 5-60min incubation
- ▶ Pan-antibiotic – a single assay is used to determine susceptibility to multiple classes of antibiotics
- ▶ Molecular-phenotypic – independent of resistance mechanisms, requiring no prior knowledge of genetic basis for resistance/sensitivity to antibiotics
- ▶ Diverse applications – **VITApex** can be used for AST, screening of new antibiotic candidates, and determining the presence and viability of a pathogen at diagnosis and/or post-therapy