

Effect of Tranexamic Acid on Planktonic and Biofilm Susceptibility of *Candida albicans*

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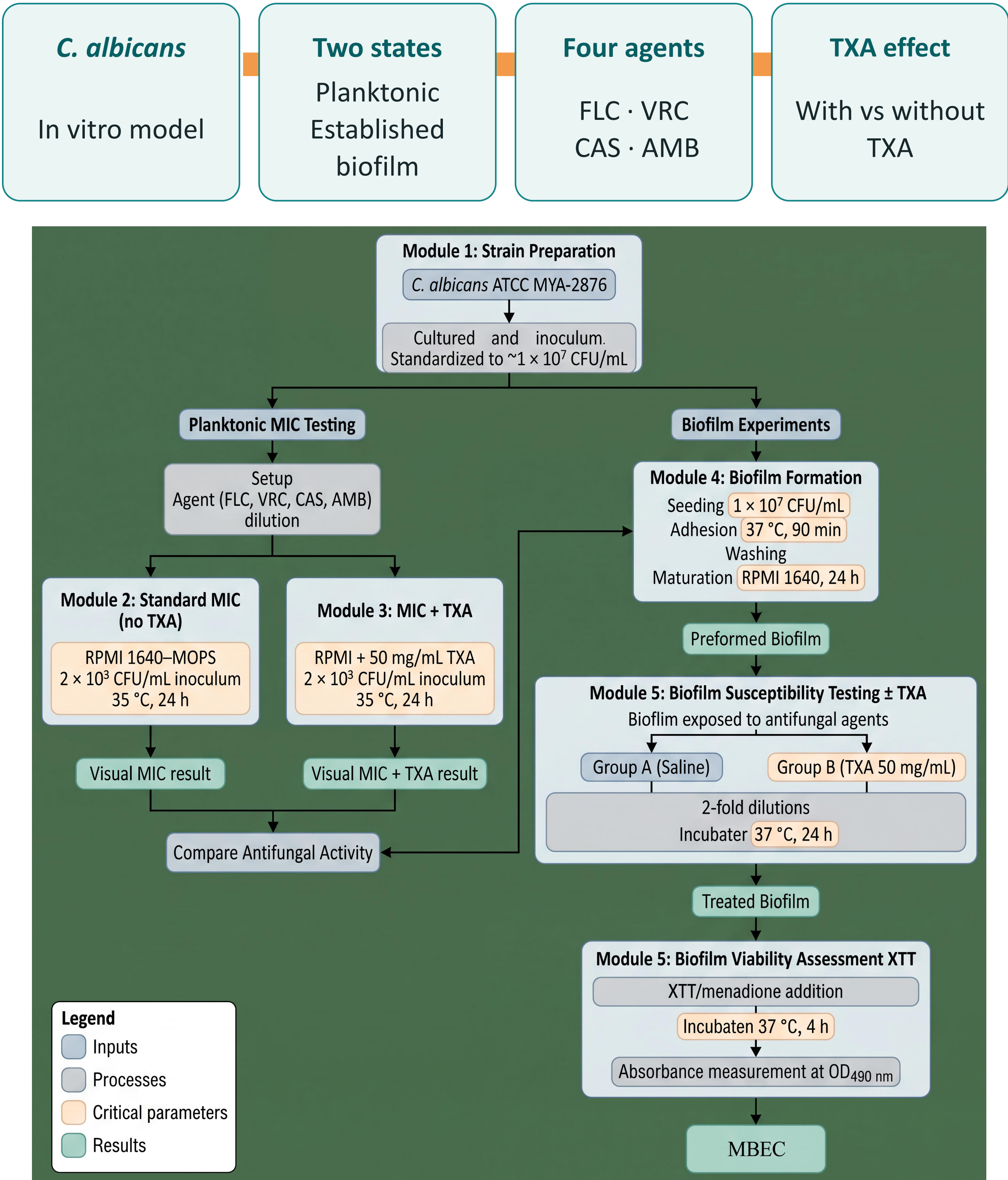
BACKGROUND

Fungal periprosthetic joint infection (PJI) is difficult to eradicate because *Candida albicans* forms antifungal-tolerant biofilms. Tranexamic acid (TXA) is routinely used during arthroplasty and may directly coexist with antifungal agents in the joint.

KNOWLEDGE GAP

Does TXA alter antifungal activity against *C. albicans*-and does the effect differ between planktonic and established biofilm states?

STUDY DESIGN



PLANKTONIC SUSCEPTIBILITY

Baseline MIC and direction of change with TXA

Agent	Baseline MIC	With TXA	Interpretation
FLC	0.75 µg/mL	Unchanged	Neutral
VRC	0.50 µg/mL	↓ 4-fold	Potentiated
CAS	1.00 µg/mL	↓ 2-fold	Potentiated
AMB	0.75 µg/mL	↑ 2-fold	Attenuated

ESTABLISHED BIOFILM RESULTS

TXA reshaped agent-specific dose–response profiles

FLC

Potentiated by TXA

Peak metabolic inhibition rose from 50-55% in saline to 85-90% with TXA.

MBEC₅₀ 48
→ MBEC₉₀ 192
µg/mL

VRC

Antibiofilm activity attenuated

TXA produced a right-shifted dose-response curve.

Baseline
MBEC₅₀
1,024 µg/mL

CAS

Activity threshold lowered

TXA reduced the concentration required to reach the biofilm activity threshold; maximal suppression later converged.

MBEC
256 → 128
µg/mL

AMB

Strong antagonism

The concentration required for the biofilm endpoint increased eightfold with TXA.

MBEC
1.5 → 12
µg/mL

RESPONSE MAP

Direction of TXA-associated change by antifungal class and growth state

Agent	Planktonic	Established biofilm
FLC	Neutral	Potentiated
VRC	Potentiated	Attenuated
CAS	Potentiated	Potentiated
AMB	Attenuated	Attenuated

CONCLUSION

TXA was not pharmacologically neutral.

Its effects depended on antifungal class and fungal growth state. The planktonic-biofilm discordance supports mechanistic validation and clinically relevant *Candida* biofilm studies before these *in vitro* interactions are translated into perioperative practice.

TAKE-HOME MESSAGE · Evaluate TXA-antifungal combinations in the biofilm state-not from planktonic MIC alone.