Investigating Structure-Function Relationships of Amphotericin B: Degradative Synthesis and Bioassay

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The antifungal drug Amphotericin B (AmB) has emerged as a potential prototype of a small molecule with protein-like function. The current model of AmB antifungal activity involves ion channel formation via self-assembly of AmB molecules in fungal cell membranes. While this ion channel has not been rigorously characterized, molecular modeling predicts key intermolecular interactions which would stabilize the self-assembled channel. To investigate this hypothesis, we synthesized an AmB derivative which lacks the functionality to participate in one of these key intermolecular interactions. We then compared the activity of this derivative to that of AmB in yeast inhibition assays.