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**THE APPLICATION OF PROTEIN MASS SPECTROMETRY IN
STUDYING POLYKETIDE BIOSYNTHESIS.**

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ABSTRACT: Polyketide synthases (PKSs) are responsible for the production of a vast array of biologically active compounds that mediate interactions between organisms. Mass spectrometry (MS) is a powerful tool for studying the structure and enzymology of catalytic domains within PKSs. Here I present some of my group's work on the use of MS to examine the biochemistry of domains from the *trans*-acyl transferase group of modular type I bacterial PKSs. In particular I will focus on the mechanism and significance of substrate specificity exhibited by ketosynthase domains and the mapping of interaction sites between PKS catalytic domains using carbene footprinting methodology.