

Generation of Structurally Diverse Compounds from Gibberellic Acid Leads to the Discovery of a Novel Anticancer Compound

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Natural products have traditionally formed the backbone of drug discovery programs, and are generally more structurally and stereochemically complex than the combinatorially-derived compounds and commercial small molecule collections that make up most screening libraries. Herein we present a new synthetic approach, termed Complexity to Diversity (CtD), to create novel, complex architectures from readily available natural products in 2-5 steps. We identified the plant hormone gibberellic acid as an optimal natural product for this strategy, and a series of ring distortion reactions were employed to reorganize the original scaffold into five structurally-distinct and unique core structures.