The antibiotic macrolide (-)-Pulvomycin (1), which has first been isolated in 1957 and to date has not been synthesized, was targeted in a convergent total synthesis [1]. The molecule was retrosynthetically divided into four building blocks.

Scheme 1. Retrosynthesis into the building blocks C1-C7 (2), C8-C11 (3), C12-C23 (4) and C24-C40 (5).

The vinyl iodide 2 bearing a supersilyl protecting group on the carboxylic acid was prepared over twelve linear steps from 1,3-propanediol with 18% overall yield. The literature known stable linchpin diene 3 was synthesized from propynol with 29% yield over seven steps [2]. In a 13-step sequence starting from methyl crotonate, D-mannitol, D-phenylalanine and 1,3-propanediol aldehyde 4 was received with 18% yield. The synthesis involved a Horner-Wadsworth-Emmons as well as a Julia-Kocienski olefination. Starting from D-galactose, ethyl lactate and propynol the synthesis of ketone 5 could be achieved in a 23-step sequence with 6.8% yield. All four building blocks could be merged into the C1-C40 carbon skeleton of (-)-Pulvomycin (1) to provide a precursor for the final macrolactonization.