Total synthesis of kidamycinone.

Aymeric Siard[(1)] ; Thibaud Mabit[(3)]; François Carreaux[(2)]; Gilles Dujardin[(3)]; Jacques Lebreton[(1)] and Sylvain Collet[(1)*]

(1) Université de Nantes, CEISAM UMR-CNRS 6230, 2 Rue de la Houssinière, BP 92208, 44322 NANTES CEDEX 3.
(2) Université de Rennes, Institut des Sciences Chimique de Rennes UMR CNRS 6226, Campus de Beaulieu, Bât 10A, avenue du Général Leclerc, 35042 RENNES
(3) Université du Maine, IMMM UMR CNRS 6283, Avenue O. Messiaen, 72085 Le Mans,

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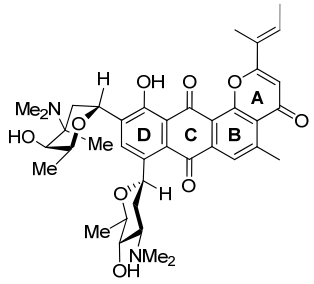
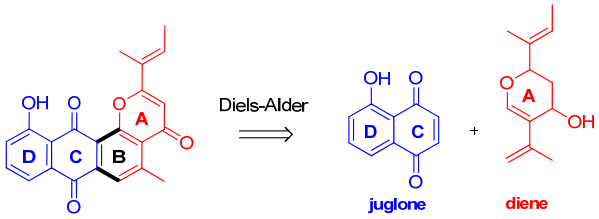
The pluramycin family[(a)] represents a group of natural compounds first isolated from *Streptomyces pluricolorescens* and exhibiting antimicrobial and antitumoral activity. Pluramycins' skeleton is a 4*H*-anthra[1,2-*b*]pyran-4,7,12-trione, also called ABCD tetracycle, functionalized by two desoxy-aminosugars (referenced as rings E and F) by C-glycosidic linkages respectively in C_8 and C_{10}, and a side chain in C_1. Kidamycin **1**, one of the earliest known members of this family, bears *D*-angolosamine and *N,N*-dimethyl-*L*-vancosamine branched at C_8 and C_{10}, respectively, a 2-butenyl residue attached at C_1 and two additional substituents, a methyl at C_5 and a hydroxyl at C_{11}. Taking advantage of our experience in the total synthesis of natural compounds and in the development of new methodologies in organic synthesis,[(b)] we project a novel total synthesis of kidamycin **1**. The challenge was here to propose a convergent fragment-assembly strategy with modulable building blocks in order to open the route to the preparation of a range of pluramycins or simplified analogues to be tested as potential therapeutic agents.
In this communication we will present an efficient total synthesis of kidamycinone **2**, the aglycone part of kidamycin. The tetracyclic skeleton is formed by addition of DC framework to the A ring while creating the B ring by means of a Diels-Alder reaction. Following oxidation steps permitted us to obtain the targeted kidamycinone **2** in 9 steps and 22% overall yield.



kidamycin 1



kidamycinone 2

Bibliographic references:

(a) For a general review, see: Hansen, M. R.; Hurley, L. H. *Acc. Chem. Res*. **1996**, *29*, 249-258.
(b). 1) Maingot, L. ; Vu, N-Q. ; Collet, S. ; Guingant, A. ; Martel, A. ; Dujardin, G. *Eur. J. Org. Chem*. **2009**, 3, 412-422 ; 2) L. Foulgoc, D. Sissouma, M. Evain, S. Collet, A. Guingant; *Synlett* **2012**, 768. 3) M. Pantin ; D. Zon ; R. Vomiandry; L. Foulgoc; D; Sissouma; A. Guingant; S. Collet , *Tetrahedron Lett*. **2015,** 56, 16, 2110.

* Correspondence: sylvain.collet@univ-nantes.fr