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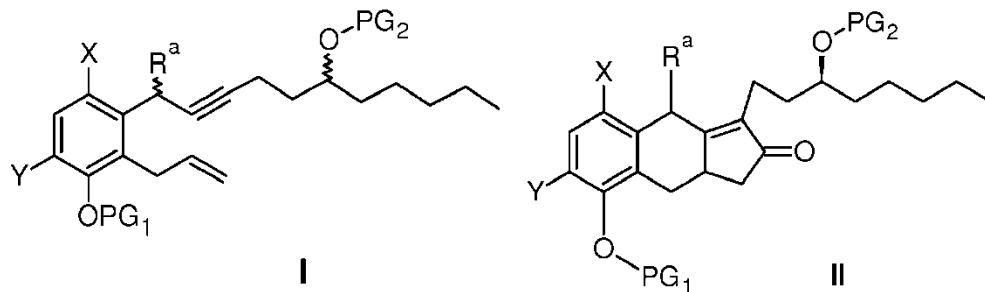
(54)	Title	Process for the preparation of treprostinil and derivatives thereof
(56)	References Cited:	WO-A1-2011/153363 WO-A1-2012/009816 US-B2- 6 700 025 MORIARTY ROBERT M ET AL: "The Intramolecular Asymmetric Pauson-Khand Cyclization as a Novel and General Stereoselective route to Benzindene Prostacyclins: Synthesis of UT-15 (Treprostinil)", JOURNAL OF ORGANIC CHEMISTRY, ACS, US, vol. 69, no. 6, 1 January 2004 (2004-01-01), pages 1890-1902, XP002523983, ISSN: 0022-3263, DOI: 10.1021/JO0347720 [retrieved on 2004-02-19] BRUCE ET AL: "Claisen rearrangement of meta-substituted allyl phenyl ethers", JOURNAL OF

THE CHEMICAL SOCIETY, PERKIN TRANSACTIONS 1, CHEMICAL SOCIETY,
LETCHWORTH; GB, vol. 10, 1 January 1981 (1981-01-01), pages 2677-2679, XP002198137,
ISSN: 0300-922X, DOI: 10.1039/P19810002677

Enclosed is a translation of the patent claims in Norwegian. Please note that as per the Norwegian Patents Acts, section 66i the patent will receive protection in Norway only as far as there is agreement between the translation and the language of the application/patent granted at the EPO. In matters concerning the validity of the patent, language of the application/patent granted at the EPO will be used as the basis for the decision. The patent documents published by the EPO are available through Espacenet (<http://worldwide.espacenet.com>) or via the search engine on our website here: <https://search.patentstyret.no/>

Patentkrav:

1. Forbindelse med formel I eller formel II



5 hvor

X er Br;

Y er H og

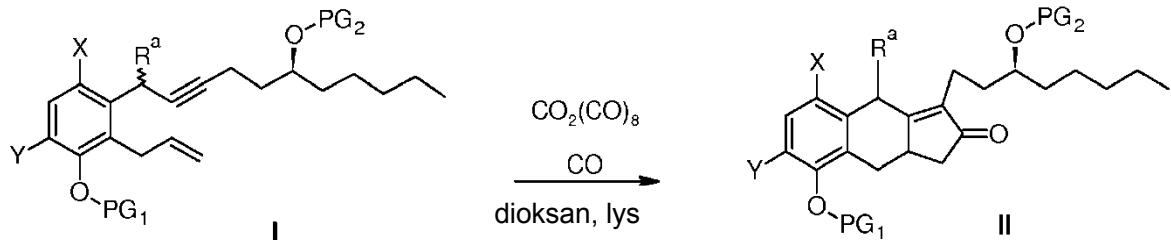
PG₁ er methyl, metoksymetyl, benzyloksymetyl, metoksyetoksymetyl, benzyl, 4-metoksybenzyl, 2,6-diklorbenzyl, 3,4-diklorbenzyl, -CH₂COOH, CH₂COOR_x og CH₂CH₂OPG₂;

10 **PG₂** er tert-butyl-dimethylsilyl; og

R^a er hydroksy;

R_x er C₁₋₄-alkyl eller aryl.

- 15 2. Fremgangsmåte for fremstilling av en forbindelse med formel (II), som omfatter det følgende trinn:

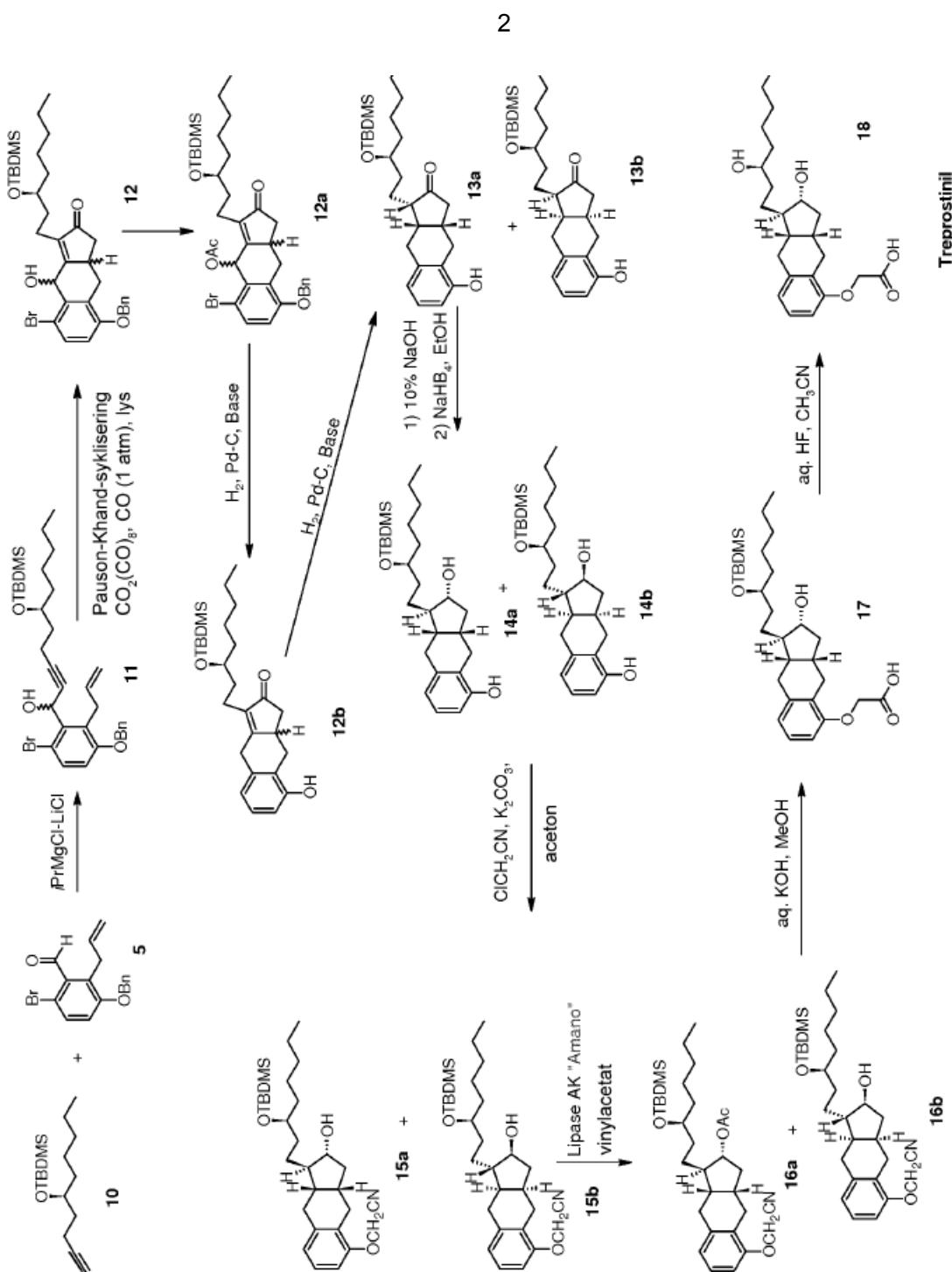


hvor

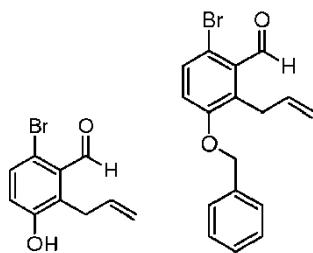
X, **Y**, **R^a**, **PG₁** og **PG₂** er som definert i krav 1.

20

3. Fremgangsmåte for fremstilling av treprostинil (**18**) ifølge krav 2, som omfatter de følgende trinn:



4. Ny mellomforbindelse valgt fra gruppen bestående av



4a

5

