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# Reagent of the Year 1995

40180 [(4R, 5R)-2,2-Dimethyl-1,3-dioxolan-4,5-bis-(diphenylmethoxy)]cyclopenta-dienyl-chlorotitanium [(R, R)-Duthaler-Hafner Reagent]

40182 [(4S, 5S)-2,2-Dimethyl-1,3-dioxolan-4,5-bis-(diphenylmethoxy)]cyclopenta-dienyl-chlorotitanium [(S, S)-Duthaler-Hafner Reagent]

Package sizes: 500 mg and 5 g

## The Prize Winners 1995:



Rudolf O. Duthaler studied science at the ETH Zürich, finishing in 1973 with a thesis in physical organic chemistry under the direction of Prof. C. Ganter. After two years of post-

doctoral studies with Prof. J. D. Roberts at CALTECH he returned to the ETH Zürich, where he was in charge of an independent research group studying synthetic methodology. In 1984 he joined Ciba-Geigy AG, Central Research Laboratories, where he holds the position of group and project leader. Among several topics, he also took part in the development of novel enantioselective titanium reagents and their application. He was awarded the silver medal of the ETH and the prize of the Association of Swiss Chemists.



Andreas Hafner was born in Switzerland 1956. After graduation at the University of Zürich, Department of Inorganic Chemistry, he did his doctoral studies in organic chemistry with Prof.

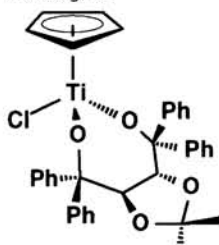
W. von Philipsborn (University of Zürich). After joining the group of L.S. Hegedus (1986, Colorado State University) he moved 1988 to the Central Research Laboratories of Ciba-Geigy, Basel and took part in the development of novel enantioselective titanium reagents and their applications. In 1992 he has been nominated as group leader to the materials research department of Ciba Geigy Marly and in 1994 he received the «Werner Preis» of the Swiss Chemical Society. His current research interests involve the development of (photo)catalysts and functional chromophores and its applications in the field of materials science.



Martin Riediker, born in 1952, received his doctorate in chemistry from the Swiss Federal Institute of Technology (Prof. O. Jeger) and post doctoral degree from Princeton University

(Prof. J. Schwartz). In 1982 he joined Central Research at Ciba, Basel. In 1988 he was appointed Head of Polymers R & D in Ardsley. Since 1991 he has been in charge of the US Resins Business and since 1994 of the American Polymers Division.

## The Reagent:



1995 and ent-1995

The addition of allyl nucleophiles to aldehydes proceeds with unparalleled stereoselectivity, if the Reagent of the Year 1995 or ent 1995 is used for the transmetalation of allyl-Grignard or allyl-Li compounds [1, 2, 3]. Due to the broad variety of substrates tolerated, including mismatched combinations, this method is a powerful tool for acyclic stereoselection [1, 4]. The tartrate derived tetraphenyl-dioxolane-dimethanol used for this reagent and diacetone glucose, described earlier [5], are so far the only useful ligands identified for such reagents [6, 7]. While the diacetone glucose derived complex gives slightly inferior but

still good stereocontrol for allyl-additions, it is the reagent of choice for the aldol reaction of acetat- [8], propionat- [9], and glycine-enolate additions [10]. With enolates prepared from the Reagent of the Year 1995, on the other hand, good stereocontrol has so far been restricted to glycine [2, 3, 4]. Despite stoichiometric quantities (1.2 to 1.5 equivalents) of reagent used, the ease of handling allows for batches of up to 1 mol with normal laboratory equipment (e.g. [11]). Chiral ligand and monocyclopentadienyl-titanium trichloride can be recovered readily [2].

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 Note: These reagents are also included in the «Encyclopedia of Reagents for Organic Synthesis», L. A. Paquette (Ed), Wiley, New York, 1995.

## The Fluka Prize:

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0022-4936(1995)17:1-F

The winner will be awarded the sum of sFr. 10 000.–. Nominations for the Fluka Prize «Reagent of the Year» should be submitted to the Fluka Prize Committee c/o

Fluka Chemie AG, CH-9471 Buchs/Switzerland no later than September 30th. Full details regarding the Fluka Prize are available upon request.