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### Thalidomide and Its Chirality: Towards Paradox

Twenty years after the thalidomide notorious disaster in worldwide, Blaschke *et.al*, in Muenster University reported that only (S)-thalidomide is proved to be teratogenic. However, the strongly acidic hydrogen atom at the asymmetric center of thalidomide rapidly epimerizes under physiological conditions, rendering bioassay of the enantiomers difficult. A question is whether thalidomide is stereogenically teratogenic. Here we show one of the solutions to this “thalidomide paradox” by a racemic quenching effect of hetero chiral dimer.

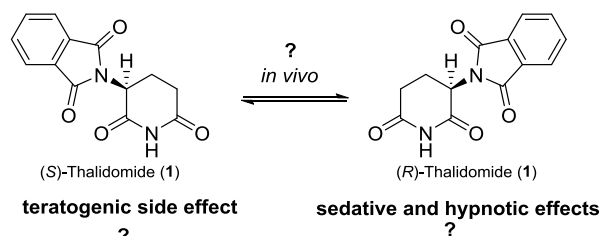


Fig. 1. A fundamental question is whether thalidomide is stereospecifically teratogenic.

## CV

Norio Shibata (July 3, 1965, Osaka, Japan) is a Professor at the Nagoya Institute of Technology, since 2008. He received a Ph.D. (1993) in pharmaceutical sciences from Osaka University under the direction of Professor Yasuyuki Kita. He worked at Dyson Perrins Laboratory (Professor *Sir* Jack. E. Baldwin), Oxford University (JSPS fellow, 1994-1996), Sagami Chemical Research Institute (Dr. Shiro Terashima, 1996), after which he was a lecturer at Toyama Medical & Pharmaceutical University (1997-2003), and an associate professor at the Nagoya Institute of Technology (2003-2008). He also acted as a visiting professor (2008, 2012) at the University of Rouen. He received the “Takeda Pharmaceutical Company Award in Synthetic Organic Chemistry, Japan 2000”, the “Incentive Award in Synthetic Organic Chemistry, Japan (2004)”, the “RSC Fluorine Prize (inaugural Prize in 2005)”, the “20th Lecture Award for Young Chemists in Chemical Society of Japan (2005)”, the “Fluorine Chemistry Research Incentive Award in Research Foundation ITSUU Laboratory (inaugural Prize in 2009)”, the “The Pharmaceutical Society of Japan Award for Divisional Scientific Promotions (2010)”, and “Prizes for Science and Technology, The

Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (2014)". His research interests are synthetic and medicinal fluorine chemistry.