Conference Call

Organic Synthesis

by Tamejiro Hiyama

Organic synthesis has long played a central role in the chemical sciences. Thus, it is stands to reason that the series of **International Conferences on Organic Synthesis**, initiated and sponsored by IUPAC, continues to thrive. The 15th Conference (ICOS-15) was held 1–6 August 2004 in Nagoya, Japan.

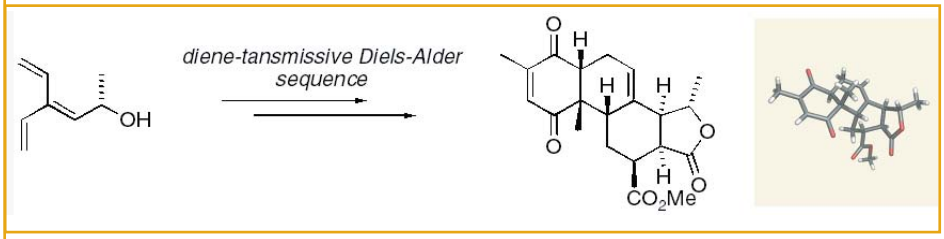
Given the widely held view that chemists in Japan are leaders in organic synthesis, the decision was made to hold ICOS-15 in Nagoya. In light of its distinct leadership in organic synthesis, it is surprising that ICOS had not been held in Japan since 1982 (ICOS-4). Professor Minoru Isobe (Nagoya University) and Professor Hisashi Yamamoto (now at the University of Chicago) enthusiastically took up the baton as the conference co-chairs. Nagoya was chosen as the venue because it is a research center that is close to Tokyo and Osaka/Kyoto.

The organizers provided a superb combination of chemistry, efficiency, and hospitality for near 1000 participants. A major change for ICOS-15, compared with ICOS-4, was the marked increase in participants from East Asia, which reflects the rapid growth in this field over the last two decades in Taiwan, China, Korea, and Singapore. These countries, combined with Japan and East Asia, now comprise the third center of chemical research activity in the world after North America and Europe.

Another feature of ICOS-15 was that all plenary, invited, and award lectures were presented in the main hall, enabling all of the participants to enjoy the full range of cutting edge developments in chemistry. In addition, all of the poster presenters (totaling 466) were allowed to orally summarize their presentations before the session to help attendants decide which of the posters they should visit. Of the posters, three excellent presentations by **Toshifumi Dohi** (Osaka University), **Eun Joo Kang** (Seoul National University), and **Natalie A. Miller** (Australian National University) were awarded the IUPAC Poster Prize.

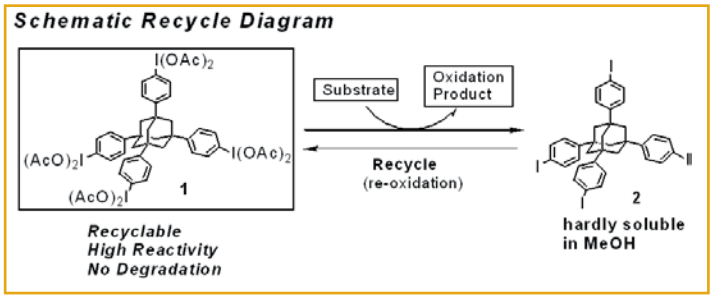
IUPAC Poster Prize Winners Toshifumi Dohi (top left), Eun Joo Kang (right), and Natalie A. Miller.

The scientific program embraced all aspects of modern synthetic organic chemistry. There were 10 plenary lectures, the Thieme/IUPAC award lecture, 2 Nagoya medal lectures, and 20 invited lectures.



(Left) The synthesis of chiral [3]- and [4]dendralenes has been achieved. Diene-transmissive Diels-Alder reactions of these compounds allow the rapid assembly of enantiomerically pure polycyclic compounds. (IUPAC poster prize winner Natalie A. Miller)

(Right) A novel non-polymer-supported hypervalent iodine(III) reagent 1 has been developed that has high recyclability as well as high reactivity, stability. This reagent has several advantages overcoming several drawbacks of conventional polymer-supported hypervalent iodine(III) reagents. (IUPAC poster prize winner Toshifumi Dohi)



Following is a list of the plenary speakers and their lecture subjects:

- E.M. Carreira (ETH) on asymmetric catalysis
- J.L. Wood (Yale) on synthesis of polycyclic target molecules
- P.B. Dervan (Caltech) on regulation of gene expression
- A. Fürstner (Max-Planck) on catalysis-based total synthesis
- Ryoji Noyori (RIKEN) on molecular catalysis
- L. E. Overman (UCI) on alkaloid total synthesis
- C.-C. Liao (Tsing Hua) on masked o-benzoquinone strategy
- S.V. Ley (Cambridge) on methods for azadirachtin total synthesis
- Y. Langlois (Paris Sud) on cytotoxic natural products synthesis
- E.N. Jacobsen (Harvard) on asymmetric metal catalysis

The Thieme/IUPAC prize was awarded to **John Hartwig** (Yale) who lectured on transition metal-catalyzed substitution reactions. The Nagoya Silver Medal was given to Keiji Maruoka (Kyoto) who gave a talk on practical asymmetric synthesis with chiral phase transfer catalysts. The Nagoya Gold Medal was presented to J.F. Stoddard (UCLA), who discussed the nature of the mechanical bond.

Topics of ICOS-15 focused on automated synthesis, bioorganic chemistry, combinatorial chemistry, green chemistry, Lewis acid catalysis, new catalysis, new material, oxidation catalysis, polymer synthesis, process chemistry, reduction catalysis, self-assembled molecule, synthesis of natural products, and medicinal drugs and agrochemicals. A selection of plenary and invited lectures will be published in *Pure and Applied Chemistry*, for which Tamejiro Hiyama is acting as conference editor.

The next conference, ICOS-16, will be held in Merida, Yucatan, México, from 11–15 June 2006. Dr. Eusebio Juaristi, Instituto Politecnico Nacional, México, is the chairman of the organizing committee.

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Vanadium Chemistry

by Tamas Kiss

The **4th International Symposium on Chemistry and Biological Chemistry of Vanadium** was held 3–5 September 2004 in Szeged, Hungary. The symposium followed the 7th European Biological Inorganic Chemistry (EUROBIC) conference (Gearmich Partenkirchen, Germany) and provided a forum for the presentation and discussion of recent results in the following areas:

- biological aspects of vanadium chemistry
- inorganic chemistry of vanadium
- vanadium chemistry in catalysis and organic synthesis

The conference attracted over 110 participants from 25 countries and 4 continents. There were 5 plenary lectures (Hirao, Pecoraro, Yamamoto, Tracey, and Sakurai), 14 invited lectures, 9 lectures, and 57 posters presented during the program. The plenary and section lectures represented the wide scope of vanadium chemistry.

Fifteen lectures dealt with the biological importance of vanadium and its role in halogenoperoxidases and in forming insulin-mimetic compounds. Eleven lectures presented new results concerning the versatile inorganic chemistry of vanadium. Five papers discusssed vanadium compounds as catalysts. The distribution of the 57 posters presentations among the three main areas was very similar.

V. Pecoraro, R. Vewer, J. Littlechild, M. Sivak, and G. Santoni presented results of using synthetic, structural, biological, and computational methods to understand the mechanism of vanadium haloperoxidases. H. Sakurai, D.C. Crans, C. Orvig, D. Rehder, Y. Shechter, and M. Makinen reported new developments of insulin enhancing vanadium complexes as potential pharmaceuticals. Various aspects of the bioinorganic chemistry of vanadium were discussed in lectures by H. Michibata (vanadium accumulating Ascidians), T. Hubergtse (Amavadine), M. A. Alves (vanadium toxicity), and B. Vertessy (enzyme regulation).

Various aspects of the inorganic chemistry of vanadium were also discussed in the following lectures by A. Tracey, K. Hegetschweiler, J. Horzicek, L. Pettersson, J. Costa Pessoa, and K. Majlesi (equilibrium