

The RAFT Alliance, a Global Community Promoting Innovation

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Reversible addition–fragmentation chain transfer (RAFT) chemistry was first published in 1998 by CSIRO scientists Ezio Rizzardo, Graeme Moad, and San Thang.^[1] RAFT is a powerful polymerization technology for the synthesis of tailor-made polymers with predetermined molecular weights, with narrow polydispersities, and with highly complex architectures.^[2]

Continued research into fundamental RAFT chemistry has seen the development of intellectual property in the order of some 300 patents,^[3] all based upon the original^[4] patent from CSIRO, Australia's national research organization. Key developments of the RAFT technology, such as end-group removal,^[5–8] microgel synthesis,^[9] and aqueous polymerization,^[10,11] have been integral to the development of innovative applications. These include coatings with improved pigment dispersions,^[12] lubricants to improve fuel economy,^[13] and spatially controlled drug conjugates.^[14] There is an ever-increasing demand for technical and commercial information to support the applications of RAFT in industry. At CSIRO, we have initiated the RAFT Alliance; a community of scientists and business professionals with shared research or commercial interests in RAFT (Fig. 1). The RAFT Alliance was launched at the inaugural

RAFT Symposium in 2009.^[15] This fostered social and technical collaboration in the global RAFT community.

Presentations and publications describing the development in RAFT can be accessed on the RAFT Alliance website (<http://teams.csiro.au/sites/RAFT/default.aspx>). The RAFT Alliance site allows questions to be posed to members, and solutions to be presented. The RAFT Alliance already has over 100 members.

Companies that network with other organizations, including research institutions and their customers, have been shown to have greater success in both process and product innovation.^[16] The success of such networks has been attributed to the addition of new information and knowledge, and the opportunity for collaboration.^[17]

Access to networks, such as the RAFT Alliance, fosters greater knowledge transfer and accelerated learning. Social functions will be organized at key polymer conferences such as the Pacific Polymer Conference (Cairns, Australia, 2009), the American Chemical Society 239th National Meeting (San Francisco, USA, 2010), and the 43rd IUPAC World Polymer Congress (Macro2010, Glasgow, UK).



Fig. 1. Heather Maynard (UCLA), Ezio Rizzardo (CSIRO), Charles McCormick (University of Southern Mississippi), Sebastian Perrier (University of Sydney), and Tom Davis (University of New South Wales) at the February 2009 RAFT Symposium, held in honour of Ezio Rizzardo's 65th Birthday, where the RAFT Alliance was first launched.



Fig. 2. Ulrich Schubert (University of Jena), Stephanie Hornig (University of California, Berkeley), Kate Dawson (CSIRO), and Tim O'Meara (CSIRO) at the recent RAFT Alliance 'Meet and Greet' held during the American Chemical Society 238th National Meeting, Washington, 2009.

The RAFT Alliance 'Meet and Greet' held during the American Chemical Society 238th National Meeting (Washington, USA, August 2009) was highly successful (Fig. 2). Our next satellite event is to be held in December in Cairns, at the Pacific Polymer Conference. This upcoming 'Meet and Greet' is free for RAFT Alliance members. Contact Kate Dawson for more information on the RAFT Alliance, or sign up via <http://www.csiro.au/services/RAFT-Alliance-Sign-Up.html>.

References

- [1] J. Chiefari, Y. K. Chong, F. Ercole, J. Krstina, J. Jeffery, T. P. T. Le, R. T. A. Mayadunne, G. F. Meijs, C. L. Moad, G. Moad, E. Rizzardo, S. H. Thang, *Macromolecules* **1998**, *31*, 5559. doi:10.1021/MA9804951
- [2] G. Moad, E. Rizzardo, S. H. Thang, *Aust. J. Chem.* **2005**, *58*, 379. doi:10.1071/CH05072
- [3] Derwent Innovations Index, Thomson Reuters, **2009**.
- [4] T. Le, G. Moad, E. Rizzardo, S. H. Thang, *P. C. T. Int. Appl. WO 9801478* [*Chem. Abs.* **1998**, *128*, 115390].
- [5] A. Postma, T. P. Davis, G. Moad, M. S. O'Shea, *Macromolecules* **2005**, *38*, 5371. doi:10.1021/MA050402X
- [6] W. B. Farnham, M. Fryd, G. Moad, S. H. Thang, E. Rizzardo, *World Patent WO2005113612* **1995**.
- [7] G. Moad, E. Rizzardo, S. H. Thang, *World Patent WO2007100719* **2007**.
- [8] G. Moad, S. H. Thang, E. Rizzardo, *World Patent WO2008103144* **2008**.
- [9] C. T. Berge, J. Chiefari, J. W. Johnson, A. Mau, R. Mayadunne, C. L. Moad, G. Moad, E. Rizzardo, G. Sweigers, S. Thang, G. Wilson, S. Tang, *World Patent WO200177198* **2001**.
- [10] C. L. McCormick, A. B. Lowe, *Acc. Chem. Res.* **2004**, *37*, 312. doi:10.1021/AR0302484
- [11] C. L. McCormick, M. S. Donovan, A. B. Lowe, B. S. Sumerlin, D. B. Thomas, *World Patent WO03066685*.
- [12] B. S. Hawkett, C. H. Such, D. N. Nguyen, J. M. Farrugia, O. M. Mackinnon, *World Patent WO2006037161* **2006**.
- [13] B. J. Schober, M. Davies, M. Sutton, M. Baum, D. C. Visger, D. Price, B. R. Dohner, M. F. Wilkes, *World Patent WO2007127661* **2007**.
- [14] S. M. Henry, A. J. Convertine, D. S. W. Benoit, A. S. Hoffman, P. S. Stayton, *Bioconjug. Chem.* **2009**, *20*, 1122. doi:10.1021/BC800426D
- [15] G. Moad, *Aust. J. Chem.* **2009**, *62*, 1379. doi:10.1071/CH09549
- [16] T. Ritter, G. Menumden, *J. Bus. Res.* **2003**, *56*, 745. doi:10.1016/S0148-2963(01)00259-4
- [17] M. P. Knudsen, *J. Prod. Innov. Manage.* **2007**, *24*, 117. doi:10.1111/J.1540-5885.2007.00238.X