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## BURCKHARD SEELIG - UNIVERSITY OF MINNESOTA

BMBB/BTI, 140 Gortner Laboratory (358 Gortner)  
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### Related Experience Summary

Experimental work on in vitro selection and evolution of catalytic RNA (origin of life)  
Experimental work on the evolution of artificial protein enzymes

### Employment History

Starting July 2008 - Assistant Professor of Biochemistry, Molecular Biology and Biophysics  
(BMBB), University of Minnesota, St. Paul, MN  
2000-2008 Research Fellow in Molecular Biology, Harvard Medical School, Boston

### Education

Harvard Medical School, Boston, MA	Molecular Biology	Postdoc, 2000-2008
Free University of Berlin, Germany	Biochemistry	Ph.D., 1999
Humboldt University of Berlin, Germany	Chemistry	M.S., 1995

### Professional Societies

2003-present Member, Faculty of 1000 Biology, Section: Chemical Biology/Directed Molecular Evolution

### Awards and Honors

1999 "Summa Cum Laude" Ph.D. in Biochemistry  
2000 Emmy Noether Fellowship of the DFG, Germany

### Selected Relevant Publications

- Seelig, B.; Szostak, J. W. "Selection and evolution of RNA ligases from a partially randomized non-catalytic scaffold" *Nature* 2007, 448, 828-831.
- Seelig, B.; Keiper, S.; Stuhlmann, F.; Jäschke, A. "Enantioselective ribozyme catalysis of a bimolecular cycloaddition reaction" *Angew. Chem. Int. Ed.* 2000, 39, 4576-4579.
- Keiper, S.; Bebenroth, D.; Seelig, B.; Westhof, E.; Jäschke, A. "An architecture of a Diels-Alder ribozyme with a preformed catalytic pocket" *Chem. Biol.* 2004, 11, 1217-1227.
- Seelig, B.; Jäschke, A. "A small catalytic RNA motif with Diels-Alderase activity" *Chem. Biol.* 1999, 6, 167-176.
- Seelig, B.; Szostak, J. W.; Keefe, A. D.; Cho, G. S. "RNA ligase polypeptides and methods of selection and use thereof" US patent application 60/959,084, July 11, 2007:
- Keefe, A. D.; Wilson, D. S.; Seelig, B.; Szostak, J. W. "One-step purification of recombinant proteins using a nanomolar-affinity streptavidin-binding peptide, the SBP-tag" *Protein Expr. Purif.* 2001, 23, 440-446.
- Seelig, B.; Jäschke, A. "Evolution of DNA/RNA as catalysts for chemical reactions" *Curr. Opin. Chem. Biol.* 2000, 4, 257-262.
- Sengle, G.; Jenne, A.; Arora, P. S.; Seelig, B.; Nowick, J. S.; Jäschke, A.; Famulok, M. "Synthesis, incorporation efficiency, and stability of disulfide bridged functional groups at RNA 5'-Ends" *Bioorg. Med. Chem.* 2000, 8, 1317-1329.
- Seelig, B.; Jäschke, A. "Ternary conjugates of guanosine monophosphate as initiator nucleotides for the enzymatic synthesis of 5'-modified RNAs" *Bioconjugate Chem.* 1999, 10, 371-378.
- Seelig, B.; Jäschke, A. "Site-specific modification of enzymatically synthesized RNA: transcription initiation and Diels-Alder reaction" *Tetrahedron Lett.* 1997, 38, 7729-7732.