

EDITOR-IN-CHIEF

Kristine Chin
(212) 591-7662
krisc@aiche.org

**MANAGING
EDITOR**

Cynthia F. Mascone
(212) 591-7343
cynntm@aiche.org

**ASSISTANT
EDITOR**

Matt McKeon-Slattey
(212) 591-7317
mattm@aiche.org

REGULATORY

William A. Shirley
(888) 674-2529
envtllaw@charter.net

PATENT LAW

Henry Heines
mhh@townsend.com

**PRODUCTION
COORDINATOR**

Karen Simpson
(212) 591-7337
kares@aiche.org

ART & DESIGN

Jesse Gunzel
(212) 591-8678
jessg@aiche.org

ILLUSTRATOR

Paula Angarita
design@aiche.org

AICHE

GENERAL INQUIRIES
1-800-AICHEM
(1-800-242-4363)

MEETINGS/EXPOSITIONS
(212) 591-7324

MEMBER ACTIVITIES &
SERVICES
(212) 591-7329

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John A. Sofranko
johns@aiche.org

PUBLISHER

Stephen R. Smith
steps@aiche.org

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Editorial

Saving Lives with Chinese Hamsters

Before working on the Society for Biological Engineers' (SBE) Special Section titled "From Chinese Hamsters to Therapeutic Proteins" (pp. 33–52), I thought of hamsters more as pets than as life-saving animals. Research on hamsters, particularly Chinese hamsters (*Cricetus griseus*), has been taking place for quite some time. In fact, the first Chinese hamster ovary (CHO) cells were established about half a century ago, and the first therapeutic protein synthesized using CHO cells was approved for clinical use 20 years ago (pp. 40–47). Today, the CHO cell line is used to produce roughly 70% of all recombinant therapeutic proteins. On p. 37, you'll find a table listing the various FDA-approved biologics produced from this cell line.

However, even for all that Chinese hamsters have contributed to saving thousands of lives every year from illnesses like cancer, their genome has still not been fully mapped. Plus, demand for therapeutic proteins derived from the CHO cell line are expected to outpace current production capabilities. In 2006, SBE formed the CHO Consortium (www.aiche.org/SBE/Corporate/CHO.aspx; p. 35) to develop research tools for CHO cells to address these issues. The consortium has been quite a success, with many major pharmaceutical and biotechnology companies joining — including Bayer Healthcare AG, Boehringer Ingelheim, Bristol-Myers Squibb, SAFC Biosciences and Schering Plough. And, it is already seeing solid results. "Through our collaboration with the CHO consortium, as well as our own sequencing efforts, we have constructed a CHO database containing approximately 21,000 unique CHO sequences, about 9,000 of which encode known proteins," wrote Daniel Allison, *et al.* from SAFC Biosciences (pp. 48–52). "We have currently assembled a combined 64,162 CHO expression sequence tags and continue to update this database with new sequence additions."

Through the SBE special section, I also learned about the surging workforce and the expanding knowledge base in the biomedical sciences industry in Singapore (pp. 38–39). This nation, which has a land area slightly smaller than New York City and a population that is about half that of New York City, is rapidly becoming the epicenter for this industry. And this isn't just by chance. In 2003, Singapore committed \$330 million to build Biopolis, an integrated complex with 2.4 million ft² of space for research. Since this investment, Singapore has watched its manufacturing output for the biomedical sciences industry rise tremendously — from \$6.4 billion to \$15.2 billion.

Turn to page 33 and read more about CHO and the growth of Singapore, and get up to date on SBE activities.

Kristine Chin, Editor-in-Chief

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