
News letter - on making the difference.

On the drugs productivity paradox in dire need of new technologies

1. Repurposing with a difference

"Despite enormous investments in basic science, technology development, and experimentation with new organizational and management structures, pharmaceutical product development still requires at least 10 to 15 years and costs between \$500 million and \$2 billion (1, 2). Furthermore, there is a widening productivity gap: Research and development spending continues to increase, yet the number of new therapeutic chemical and biological entities approved by the U.S. Food and Drug Administration (FDA) has been declining since the late 1990s (3). Overcoming these and other obstacles to increased productivity may require an overhaul of the R&D paradigm (4); some have called for a "disruptive" transformation of the industry (5)".

<http://www.sciencemag.org>

4. Biological drugs: Drugs of the future

"Biologic drugs are large, complex molecules derived from living organisms. Recently, U.S. sales of biologic drugs exceed \$40 billion annually and global sales were over \$112 billion. Sales are concentrated among a few blockbuster products as just 27 biologic products represent approximately 87 percent of total biologic drug sales"

<http://www.consumer-health.com>

6. The growing allure of rational drug design

Structure-based approaches for drug design and virtual screening give new meaning to Louis Pasteur's saying "Chance favors the prepared mind." In silico methods are becoming more efficient in allowing scientists to hone in on and manipulate specific molecular structures of interest.

<http://www.genengnews.com>

2. Drug repositioning

"Repositioning existing drugs for new indications could deliver the productivity increases that the industry needs while shifting the locus of production to biotechnology companies. More and more companies are scanning the existing pharmacopoeia for repositioning candidates, and the number of repositioning success stories is increasing"

www.nature.com

3. Pharmacogenomics: the promise of personalized medicine.

"Pharmacogenetics identifies interactions between drugs and individual genes. Pharmacogenomics seeks to uncover significant associations between genomic patterns and clinical outcomes--correlations that produce useful predictive knowledge, allowing clinical treatment decision making to be based upon more rational criteria than today's probabilistic approach, which is largely based upon educated guesswork."

<http://www.questia.com>

5. Drug-diagnostic Co-development:

"The development of genomics-based molecular diagnostics that are linked to therapeutic products is critical to targeted drug developments of the future." There is a growing trend for co-development partnerships to be made during the early stages of drug development. An analysis of ongoing co-development projects indicates that more deals are being concluded well in advance of Phase II clinical trial completion.

<http://www.genengnews.com>

7. New DNA And RNA Aptamers Offer Unique Therapeutic Advantages

A novel class of drugs composed of single strands of DNA or RNA, called aptamers, can bind protein targets with a high strength and specificity and are currently in clinical development as treatments for a broad range of common diseases. <http://www.sciencedaily.com>

8. **AEBi** is a development-stage biopharmaceutical company engaged in the discovery and development of therapeutic peptides. AEBi has developed "SoAP", a combinatorial biology screening platform technology. Using SoAP, AEBi can develop drugs to almost any illness. This technology will significantly accelerate the drug discovery R&D phase and reduce attrition rate of new drug candidates. The advantage of the technology is that it generates very specific lead compounds with a great functionality, and improved pharmacological properties and no side effects.

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List of primary sources

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6. <http://www.genengnews.com/articles/chitem.aspx?aid=947&chid=1>
7. <http://www.sciencedaily.com/releases/2009/08/090805133021.htm>
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