Biosimilars Products: a viable option?

Chris Swann,
Espicom Business Intelligence

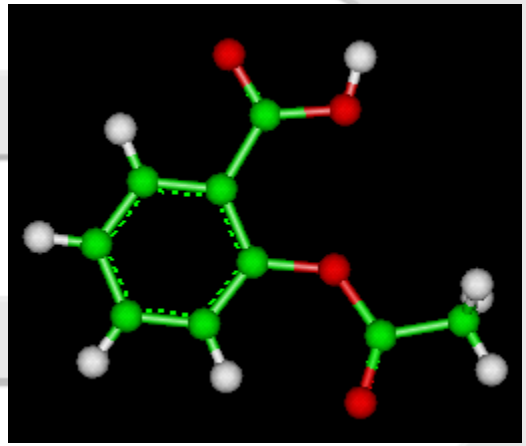
Structure

- Biologics, biogenerics & biosimilars
- Factors for & against developing the biosimilar sector
- Receptive geographical areas
- Structure of new partnerships

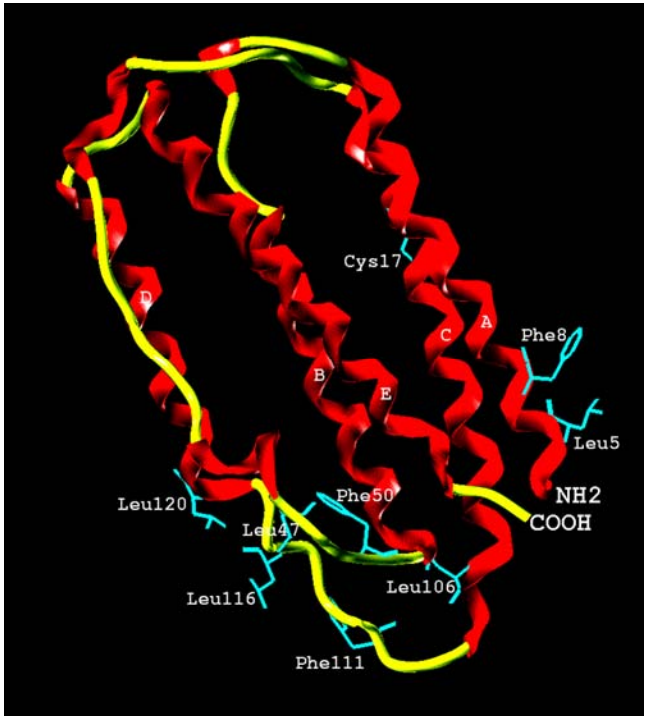
What's in a Name?

- Biologic - 'A large complex protein molecule derived from living cells, usually by use of recombinant DNA technology'
- Biogeneric - A version of a biologic already on the market whose patent has expired.
  - not in favour with regulatory bodies
- Biosimilar - an out-of-patent biologic with a proven high degree of 'similarity'

Biologic and Chemical Drugs



Aspirin



Interferon

Why Are Biosimilars an Issue?

- Manufacture, approval & marketing - major discussion areas. Why?
- Cost containment - keen interest to all purchasers of pharmaceuticals
- Patent expiry - possible for generic manufacturers to look at selling biotech drugs

Positive Development Factors

- **Rising cost of healthcare**
- Containment of pharmaceutical expenditure
- Rapid development of new treatments
- Use of generics 'frees up' resources
- Innovation impulse
- Rising prosperity in 'new' markets
- 'Out of pocket' costs of expensive drugs
- Political climate

Factors Against Development

- Characterisation of biologic products
  - INN naming issue, lack of strict definition
- **High cost of development & marketing**
- Product complexity
- Post-marketing surveillance
- Marketing requirements

Factors Against Development

- International regulatory requirements
- Regulatory obstacles
- Legal problems
  - Patent challenges
  - Exclusivity of test data
- Product acceptance

Factors Against Development

- Product acceptance
  - **Reimbursement** - How will payors treat biosimilars?
  - **Physicians** - Will physicians prescribe biosimilars?
  - **Patients.** Products administered on a long-term basis require more patient input.

Originator Strategies

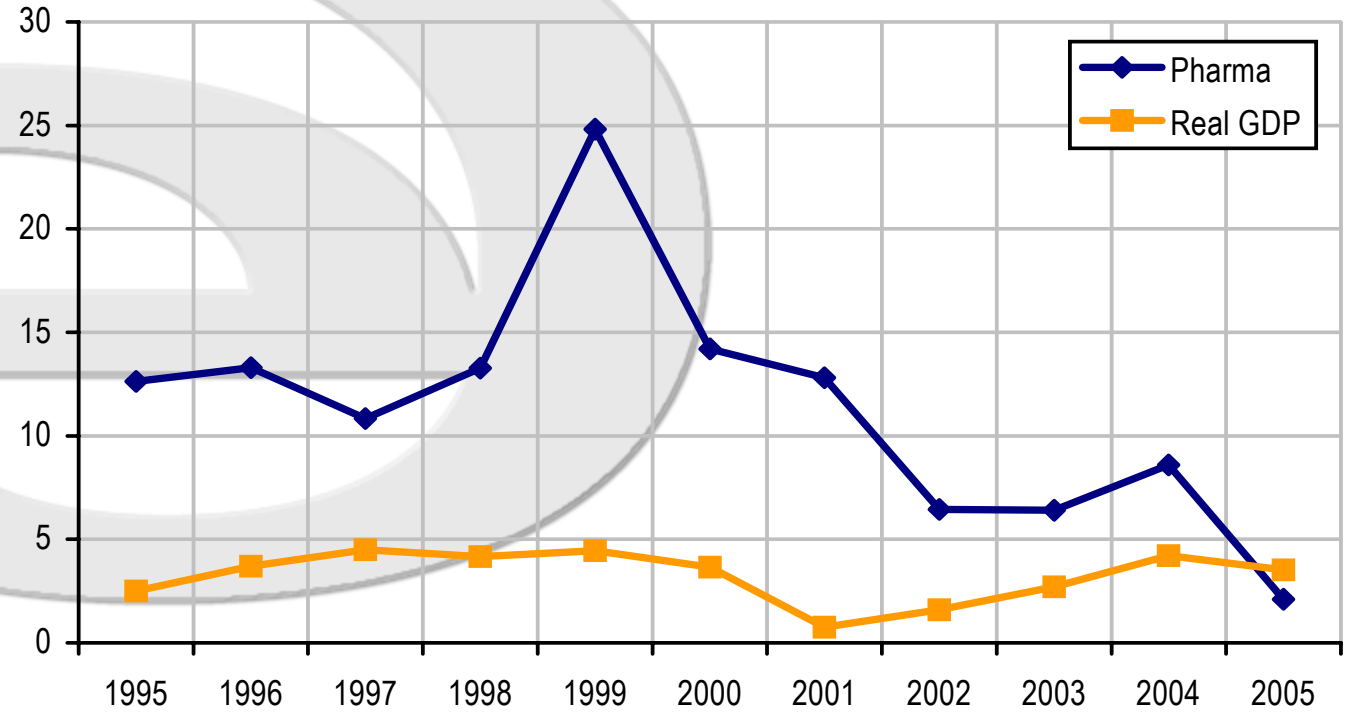
- Continued innovation
- Make biosimilars uneconomic
- Legal defences
- Aggressive marketing
- Reduce prices
- Authorised generics

Chemical Generics v. Biosimilars

	Chemical Generics	Biosimilars
Product development	Generally simple, products are well-defined chemically	Even the simpler biologics are complex and difficult to characterise.
Approval requirements	Proof of bioeqivalence and GMP compliance is usually sufficient.	Phase III clinical trials will be required, albeit with some degree of abridgement.
Legal issues	Often complex and time-consuimng for generic manufacturers	Patents surrounding biologics are more complex and more numerous than for chemical drugs.
Marketing requirements	Usually sold unbranded, with proof of bioequivalence enough to obtain automatic inclusion on reimbursement lists	Approval unlikely to lead to official declaration of bioequivalence with the originator. Products will be sold as brands, in competition with products already on the market.

GDP & Pharma Expenditure

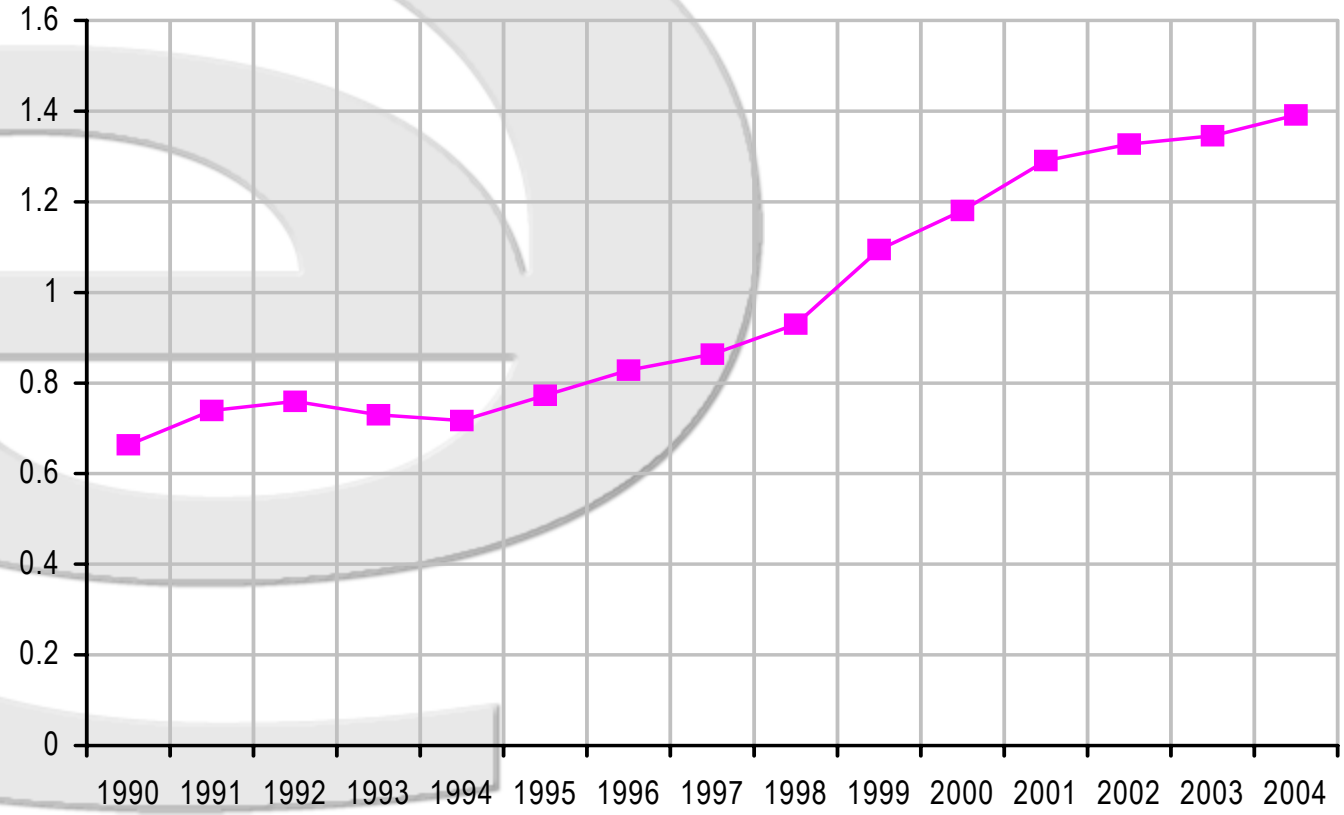
% Growth in US GDP and Pharmaceutical Expenditure, 1995-2005



Source: Economist Intelligence Unit, PhRMA

US Pharma Expenditure

US Pharmaceutical Expenditure as % of GDP, 1990-2004



USA's Position

- Hatch Waxman - not applicable to biologics?
  - Case-by-case authorisation
- Feasibility of 505(b)(2) route?
- Whether to seek an abridged application?
- Conclusion
  - 3-5 years for complete legislation
  - Current case-by-case unlikely to continue

Position in Europe

- New EU approval process
  - 2004 regulatory reforms
- Regulation of biosimilars
  - Reference branded product
  - 'Normal' data required, bioequivalence & bio-availability
  - Extra data requirements
- Reviewed case-by-case

Position in Europe - Conclusion

- Establishment of biosimilar pathway - Major achievement
- Only one biosimilar on market
- Product abandonment on cost grounds
- Focus on regulations, not what will or will not happen afterwards

Other Developed Markets

- Australia & New Zealand
  - Australia - pro-generic
  - Merged regulatory system with New Zealand, vigorous cost-cutters
  - First market to approve a biosimilar
- Japan
  - Poor prospect for generics
  - Biosimilars will be sold as brands.
  - Difficult to see approval without being an NDA

Developing Markets

- Difficult to ignore BRIC, North Africa, South East Asia
- Rapidly growing markets
- Significant untapped demand
- Less competition from originators
- Greater acceptance from users
- Lower regulatory barriers

Partnership Structures

- Complexity of biosimilars
  - Greater challenges for manufacturers
- One factor necessary for success?
- Early stage development
- Success from joint ventures
- Focus on developing markets to fund 'developed' market access

Conclusions

- Closer inspection of economic arguments look uncertain
  - Unequal competition in different markets
- Science is not really the issue
- Is there a large enough market to support investment?
- Pessimism & short term-ism v. the long term game

Thank you

Chris Swann,
Market Briefings Analyst,
Espicom Business Intelligence
chris_swann@espicom.com