

BioSimilar
Washington, DC
September 24-25, 2007

Regulatory/Scientific and Technical:
Panel Discussion

Chair: James D. Green, Ph.D., DABT
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biogen idec

Panel Discussion Format

- **Comments from Dr. Shacter**
- **Brief comments from chair**
- **Questions/comments from non-speaker panelists**
- **Posed topics/questions for panel**
- **Questions from audience**

Typical Antibody Construct – More Complexity

Potent effector molecules, conjugate, and/or glycosylation sites

Comments:

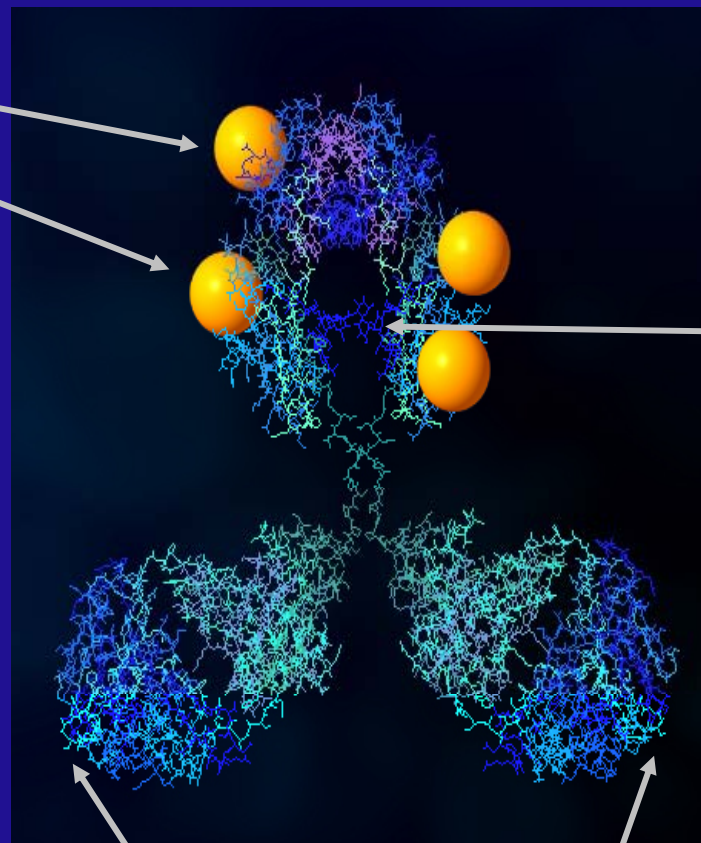
Non oral ROA

Large size
complex 3-D
structure

SAR difficult

Variant forms

No metabolites

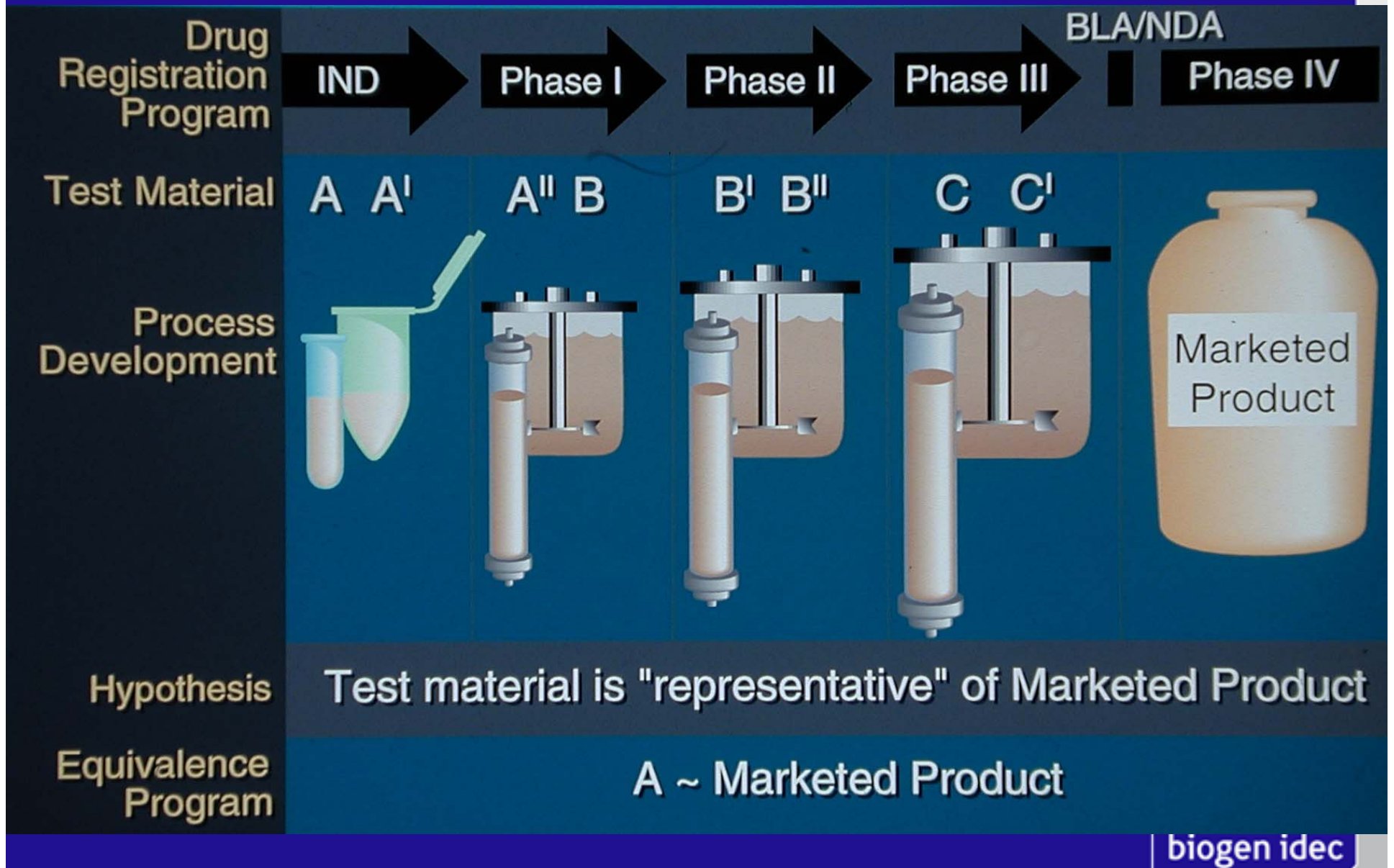


Disulfide bond

Tumor-targeting
regions

From: M. Sanicola, V. Bailly

Product Life Cycle



Changes Occur to a Manufacturing Process During Development and After Approval

- **Formulation and filling**
 - Excipient, equipment, change in manufac. protocol, scale, site change, shipping
- **Drug product**
 - Batch definition, shelf-life, container/closure, shipping, storage
- **Expression system**
 - Master cell bank
 - Working cell bank
- **Fermentation/culture process**
 - Raw materials, cell culture conditions, scale, equipment, site change
- **Purification process**
 - Column/resin, reagents, scale, site, equipment

Ref: CPMP Comparability Guidance: March 2002

BioSimilar: EU Minimum Data Requirements

- **Based on “head to head” comparisons**
 - Innovator ‘reference’ product vs. Biosimilar
- **Data set based on a comprehensive highly integrated data sets in the following areas**
 - Biochemical characterization
 - Biological activity
 - Pharmacokinetic
 - Toxicology
 - Clinical trials
- **Complete CMC dossier compliant with current ICH requirements**

Possible Topics for Discussion

- **EU system as a model for US consideration**
 - The “Science is ready”
- **Structure activity relationship (SAR)**
 - Small molecule history
 - Biologics
 - “Well characterized” and “Key product attributes”
 - What do we mean?
 - When are these known to innovators?
 - Will analytical approaches ever displace the need for clinical trials as part of a FOB application
- **What represents and ‘Extensive Comparability Program’**
 - Clinical trials in every case?
- **Scientific basis for proving ‘interchangeability’**
 - Today vs 5 years from now