Session 703 | Research to Remedy: How In-House Lawyers Support Biopharmaceutical Companies in Bringing New Medicines from the Lab Bench to the Patient’s Bedside.

This is an exciting time to be working in the biopharmaceutical sector with the advent of personalized medicine and unprecedented growth in biological medicines. Hear from practitioners at the forefront of scientific innovation discuss how they support the industry to discover and develop medicines, prepare medicines for commercial use, protect a company’s innovations, incentivize future research, market and promote and provide patients with safe and affordable medicines, while ensuring effective compliance and risk management with the integrity critical to delivering for patients. Covance counsel will discuss the legal and regulatory framework surrounding the product development life cycle from preclinical development through clinical trials. Bristol Myers Squibb counsel will discuss strategic considerations in securing global patent protection including case law and legislative updates on patent-eligible subject matter and obtaining strong patents to withstand challenges. Amgen counsel will discuss the commercial aspects of how medicines get to patients after approval including the sale, distribution, marketing and promotion of these products and the myriad stakeholders involved including insurers, payers, pharmacies, healthcare professionals and patients. A Pfizer security and compliance director will discuss brand protection strategy involving security, compliance, legal, commercial and corporate affairs to protect the integrity of medicines for patient health and safety.

Moderator:
Lindsay S. Kim Chung, Associate Director, Compliance & Ethics, Investigations, Bristol Myers Squibb

Speakers:
Elain Cleary, Senior Counsel, Amgen
Bo Han, Senior Corporate Counsel, Innovation Law, Bristol Myers Squibb
Erica Smith-Klocek, Vice President & Associate General Counsel, Covance
Chanterelle Sung, Director of Compliance for Governance, Advocacy and Corporate Affairs, Pfizer, Inc.
SESSION NAME:

Research to Remedy:
How In-House Lawyers Support Biopharmaceutical Companies in Bringing New Medicines from the Lab Bench to the Patient’s Bedside
Speakers

- Elain Cleary, Senior Counsel, Amgen
- Bo Han, Senior Corporate Counsel, Innovation Law, Bristol Myers Squibb
- Erica Smith-Klocek, Vice President & Associate General Counsel, Covance Inc.
- Chanterelle Sung, Director of Compliance for Governance, Advocacy and Corporate Affairs, Pfizer, Inc.

Moderator

- Lindsay Kim Chung, Associate Director, Compliance & Ethics, Investigations, Bristol Myers Squibb
The views and opinions expressed in this panel are those of the individual panelists, and not of their respective employers or NAPABA. The individual panelists are speaking from their personal experiences, and are not speaking on behalf of the companies that employ them.
Drug Development Process Overview

Erica Smith-Klocek
Vice President & Associate General Counsel
Covance Inc.
The Mission of the Pharmaceutical Industry

To discover and develop new, safe, and effective medicines and/or medical devices

...to enhance health and improve the quality of life....
The Case for Drug Development | Time and Cost

TOTAL
c. 10-12 years

COST
c. US $2.6B* spent for each approved drug

https://www.phrma.org/Advocacy/Research-Development/Clinical-Trials
MOLECULE TO MARKET: THE DRUG DEVELOPMENT PROCESS

Drug Research and Development | 6 Stages

1. DISCOVERY
2. SYNTHESIS
3. PRE-CLINICAL
4. CLINICAL
5. REGULATORY
6. COMMERCIAL

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1. Discovery | Therapeutic Area Drivers

Principal Aim

Identify innovative treatments for disorders for which there is no or inadequate current therapies.
1. Discovery | Therapeutic Area Drivers

**Principal Aim**

Identify innovative treatments for disorders for which there is no or inadequate current therapies.

**Legal Supports**

Patent protection; corporate security; ethical research practices; employment law support; M&A; VC Funding
MOLECULE TO MARKET: THE DRUG DEVELOPMENT PROCESS

Drug Research and Development | 6 Stages

1. DISCOVERY
2. SYNTHESIS
3. PRE-CLINICAL
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6. COMMERCIAL
2. Synthesis | Planning for Success

Full evaluation of the compound can only occur with an appropriate and timely drug supply.

To do this, a company must:

**Pre-Clinical Testing**
10 g – 2 kg

**Clinical Testing**
10 kg – 500 kg
2. Synthesis | Planning for Success

Full evaluation of the compound can only occur with an appropriate and timely drug supply.

To do this, a company must:

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Legal Support Examples

- Manufacturing agreements
- Environmental permitting
- Import/export regulations
- Patent Protection
- GMP Compliance
MOLECULE TO MARKET: THE DRUG DEVELOPMENT PROCESS

Drug Research and Development | 6 Stages

1. DISCOVERY
2. SYNTHESIS
3. PRE-CLINICAL
4. CLINICAL
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3. Pre-Clinical | Evaluation

During the process of Pre-Clinical evaluation, there are two functional aims:

- Characterization of activity of a compound
- Toxicology testing in animals

Good Laboratory Practice (GLP)
Legal Support for Pre-Clinical Stage

- GLP Regulatory
- Import/Export of Test Article and Samples
- Animal Welfare
- Controlled Substance Requirements
- Vendor Agreements for small batch manufacture, laboratory testing and analysis
- IND Filing
- Consider CDx
Drug Research and Development | 6 Stages

1. DISCOVERY
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MOLECULE TO MARKET: THE DRUG DEVELOPMENT PROCESS

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MOLECULE TO MARKET: THE DRUG DEVELOPMENT PROCESS

4. Clinical | 4 Phases of Clinical Testing

- PHASE 1
- PHASE 2
- PHASE 3
- PHASE 4
4. Clinical | Phase 1

**First in Human**

- **Studies** – small in scope
- **Subjects** – healthy volunteers
- Helps us understand the effects the drug has on a human subject
- Helps us understand what happens to the compound in the body
4. Clinical | Phase 1

PHASE 1

First in Human

Legal Support: Phase I

GCP Regulations
Pharmaceutical Regulations
HBS & Consent
Data Privacy
Volunteer Welfare
4. Clinical | Phase 2

**PHASE 2**

Evaluate **safety** and **efficacy** of the drug in subjects at the same stage of a specific disease or condition.

- **Studies** – moderate in number
- **Subjects** – only have that specific disease or condition that the medicinal product has been created to treat
- **Subjects** given various doses of the compound
4. Clinical | Phase 3

**PHASE 3**

Evaluate effects of medicinal product with specific disease or condition along with other diseases or conditions and introduction of other marketed drugs.

- Studies – much larger in number
- Phase to confirm the investigational drug’s safety and efficacy while working out the best dosage when other medicinal products are involved
4. Clinical | Phase 3

Evaluate effects of medicinal product with specific disease or condition along with other diseases or conditions and introduction of other marketed drugs.

Legal Support for Phase II-III

- Site Agreements
- Vendor Agreements (CRO, transportation, lab testing, data analysis, recruitment, randomization, etc.)
- GCP, Data Privacy, HBS, Consent
- Medical/lab licensure
- NDA Application
4. Clinical | What Happens Now!

Submit report to relevant regulatory authorities to attempt to gain approval to market the drug or device.

Continue to investigate the drug or device.

Discard the drug or device.
4. Clinical | Phase 4

**Phase 4** Post-Marketing

- Studies – significantly increased number
- Evaluate the long-term effects of the drug on greater population
- Less common adverse events may be detected
Drug Research and Development | 6 Stages

1. DISCOVERY
2. SYNTHESIS
3. PRE-CLINICAL
4. CLINICAL
5. REGULATORY
6. COMMERCIAL
3. Regulatory | Development Oversight and Marketing Authorization

- **ICH GCP**
- **FDA Code of Regulations - US**
- **EU Clinical Trial Directive**
- **Any country-specific regulations**
- **Local legislation**
- **Regulatory** (e.g., FDA, EMA, MHRA, etc.)
- **IEC/IRB** (Independent Ethics Committee/Institutional Review Board)
5. Regulatory | License Application

After submission, a decision usually takes 6 months to 2 years. During this time, the patent life is being eroded.

Some regulatory authorities have a fast-track approval system for life-threatening or severely debilitating diseases or diseases without current treatments available. In the US, the FDA target for approval in these cases is 6 months.
Drug Research and Development | 6 Stages

1. DISCOVERY
2. SYNTHESIS
3. PRE-CLINICAL
4. CLINICAL
5. REGULATORY
6. COMMERCIAL
## MOLECULE TO MARKET: THE DRUG DEVELOPMENT PROCESS

### 6. Commercial

<table>
<thead>
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<th>Countries</th>
<th>Pricing and ROI</th>
<th>Promotion</th>
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GxP Regulatory Sources

GMP: https://www.fda.gov/drugs/pharmaceutical-quality-resources/current-good-manufacturing-practice-cgmp-regulations


Helpful Sources


https://clinicaltrials.gov/

https://www.phrma.org/Science
Protecting Innovative Therapies Through IP Protection

Bo Han
Senior Corporate Counsel, Innovation Law
Bristol Myers Squibb
Celebrating Our Patients

Transforming patients’ lives through science™

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Biopharmaceutical R&D Process

10 years on average | $2.6B | 12%

Patent Basics

What is a patent?
• Exclusive property right for an invention

What is the term of a patent?
• 20 years from the date on which the patent application was filed, with extensions possible

What rights are conferred by a patent?
• Right to exclude others from making, using, offering for sale, or selling the invention or importing the invention
• Note that it does not give you a right to practice the invention itself
Patent Process

Invention Submission → Prov Appln → Patent (20 Years) (Global Filings in Over 70 Countries) → PTR → Expiry / Abandonment

- Patents take about 3-5 years to issue
- Global Enforcement & Challenges

- 1 year
- 20 yr term starts
- Published @ 18 mos
- National Appln @ 30 mos

Continued Collaboration Between R&D, Global Product Supply, Commercial & IP

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Patent Exclusivity

Composition of Matter

Primary Indications, Combinations, Modes of Administration, Dosing, Critical Formulations & Forms

Secondary Indications, Non-critical Formulations and Forms

Manufacture, Diagnostics, Devices, Kits

Discovery

Phase 1

Phase 2

Phase 3

Registration and Launch

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Commercialization of Pharmaceutical Products

Elain Kam Cleary
Senior Counsel
Amgen Inc.
Four Ps of Commercialization

**Product**
- Therapeutic Class
- Generic or Branded
- Dosage Form
- Administration
- Efficacy & Quality

**Price**
- Competition
- Treatment Costs
- Discounts

**Promotion**
- Healthcare Provider
- Visual Detail Aid
- Direct-to-Consumer
- Commercials and Magazines
- Regulatory requirements

**Place**
- Hospital
- Pharmacies
- Physician Office
- Distribution strategy
- Supply chain
Four P’s of Commercialization

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Four P’s of Commercialization: Price

Price

- Competition
- Treatment Costs
- Rebates and Discounts

Promotion

- Detail Aid
- Clinical Papers
- CME Programs
- Symposia / RTD
- Personal Selling
- International Events

Place

- Hospital
- Pharmacies
- Distribution Strategy
- Supply chain and storage
- Regulatory requirements
- Controlled vs. non-Controlled

Public Information
Four P’s of Commercialization: Promotion

- Promotion
  - Healthcare Provider
  - Visual Detail Aid
  - Direct-to-Consumer
  - Commercials and Magazines
  - International Events
Four P’s of Commercialization: Promotion

**Promotion**
- Detail Aid
- Clinical Papers
- CME Programs
- Symposia / RTD
- Personal Selling
- Regulatory Environment

**Drug Promotion: Characteristics**

- Should be reliable, accurate, truthful, informative, balanced, up-to-date, capable of substantiation and in good taste
- Comparison of products should be factual, fair and capable of substantiation
- Should not contain misleading or unverifiable statements or omissions
- Should not be designed so as to disguise its real nature
Four P’s of Commercialization: Place

Place

- Hospital
- Pharmacies
- Physician Office
- Distribution Strategy
- Supply Chain
A simplified view of the path of a Prescription Drug Monetary Flow

- **Patient / Physician**
  - Filled Rx
  - Co-pays

- **Specialty / Pharmacy**
  - Payment

- **Employers / Government**
  - Premiums
  - Payment
  - Fees

- **Manufacturers**
  - Delivery of Product
  - Payment
  - Negotiated Rebates
  - Admin Fees

- **Wholesalers**
  - Payment
  - Delivery of Product
  - Prompt pay discount

- **Health Plans**
  - Health Insurance Coverage
  - Negotiated Rebates

- **PBM*s**
  - Formulary Placement

*Pharmacy benefit manager

Public Information

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Legal Framework for Drug Commercialization

- **Food Drug and Cosmetic Act** “regulates the labeling and promotion of drugs”
- **Anti-kickback laws** prohibit “remuneration” in return for referrals or purchases
- **False claims laws** prohibit submitting or causing the submission of false or fraudulent claims to government programs
- **Health care fraud laws** prohibit a scheme or artifice to defraud any health care benefit program (e.g., HIPAA fraud)
- **State laws** supplement federal laws and sometimes apply to all payers (e.g., “all payer” anti-kickback laws in Massachusetts, Michigan, Minnesota and Rhode Island)
Brand Protection and Protecting Integrity of Medicines for Patient Health and Safety

Chanterelle Sung
Director of Compliance for Governance, Advocacy and Corporate Affairs
Pfizer, Inc.
Elements of an Effective Compliance Program

- Culture
- Governance & Organization
- Risk Assessment & Mitigation
- Third Party Compliance
- Investigations & Corrective Action
- Monitoring
- Policies & Processes
- Training & Communications

Effective Risk Management

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Questions?