



Patents:

What They Are, Why They Matter, and How to Get Started

Albert Wai-Kit Chan, Ph.D., J.D.
Law Offices of Albert Wai-Kit Chan, PLLC

Roy Yee-Loi Chan, Ph.D., LL.M.
Albert Wai-Kit Chan Intellectual Property Limited

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Intellectual Property (IP)

Physical Assets vs Intangible Assets

- Physical Assets
 - Physical object: land, building, equipment, etc.
 - Limited availability: limited number of people may use at the same time
- Intangible Assets
 - Have monetary value but no physical substance: e.g., software, brand recognition, goodwill (商譽)
 - Creations of one's mind: e.g., ideas, songs, writings
 - Unlimited availability: one can use without preventing others from using

IP Rights

- Intellectual Property
 - Intangible
 - Creations of one's mind: e.g. ideas, songs, writings
- Exclusive Rights
- Four Main Types
 - Patent (invention)
 - Trademark (product/service identifier)
 - Copyright (artistic/literary work)
 - Trade secret (know-how)



<http://www.ipwatchdog.com/images/coke.jpg>

<http://noonedriving.com/blog/?tag=certificates>

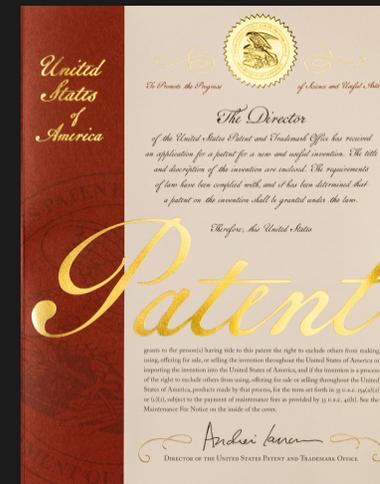
<http://www.against-the-grain.com/wp-content/uploads/2012/07/copyright-microsoft-clip-art1.jpg>

<http://www.isqua.org/education/isqua-asqua-tjcha-joint-fellowship/tjcha-content>

http://marketing-case-studies.blogspot.hk/2008_05_01_archive.html

Patents Protect Inventions

- **Exclusive rights** in exchange for **full disclosure** of the invention
- Patent owner has the **right to exclude** others from **making**, **using**, **selling**, **importing** and **offering to sell** the patented product for a set period of time
- In the US, patents are granted by the Government, but policed by the Applicant



Five Basic Patentability Requirements

- Statutory requirements for patentability (U.S.):
 - Utility (35 USC §101)
 - Novelty (35 USC §102)
 - Non-obviousness (35 USC §103)
 - Written Description (35 USC §112)
 - Enablement (35 USC §112)
- 授予專利權的條件（中華人民共和國）
 - 授予專利權的發明和實用新型，應當具備新穎性、創造性和實用性。（專利法第二十二條）
 - 說明書應當對發明或者實用新型作出清楚、完整的說明，以所屬技術領域的技術人員能夠實現為準。（專利法第二十六條）

Patent - U.S. vs China



U.S.			China	
Utility	20 years	=	Invention	20 years
Design	15 years	=	Design	10 years
Plant	20 years		/	
/			Utility model	10 years

U.S.	China	
<u>Utility Patent</u> 發明專利	<u>Invention Patent</u> 發明專利	<u>Utility Model</u> 實用新型
Any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvements thereof	Any new technical solution relating to a product, a process or improvement thereof	Any new technical solution relating to the shape, the structure , or their combination, of a product , which is fit for practical use

From R&D to commercialization

- High risk business
 - Huge capital & running cost
 - High failure rate
 - Long development time
 - Competitors



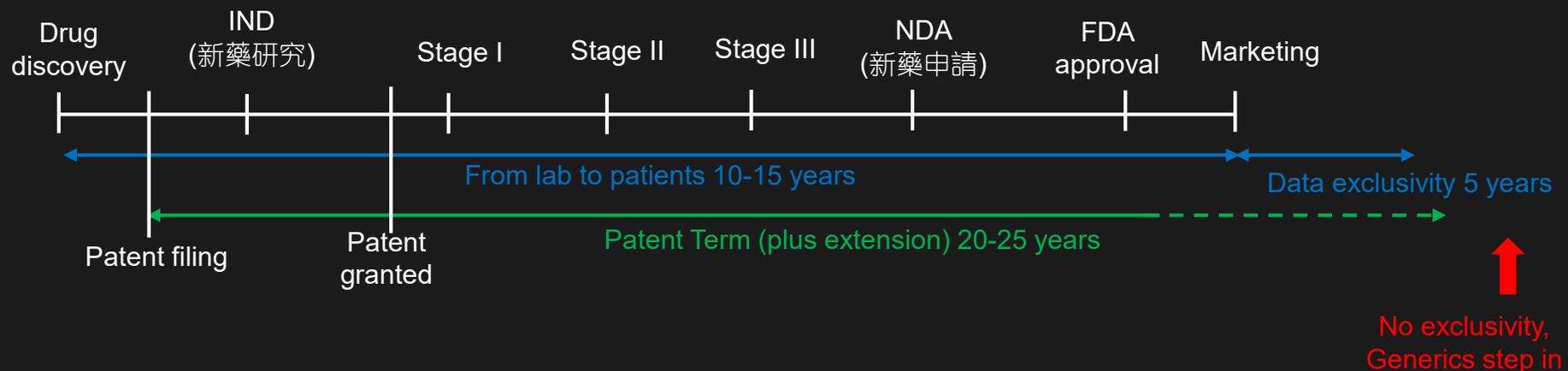
Why Intellectual Property Rights (IPRs)?

- Protection
 - Prevent undesired/disagreeable exploitation by others
- Business development
 - Freedom to operate, minimize risk of infringement
 - IP portfolio → technology transfer, generate revenue
 - Sustain or expand R&D → commercialization



Drugs – Regulatory & Market Exclusivity

- 10-15 years from laboratory to patients
- Market Exclusivity
 - Patent term – 20 years
 - Patent term extension for drugs – max 5 years
 - Data exclusivity (藥品市場獨佔期) – 5 years after drug approval



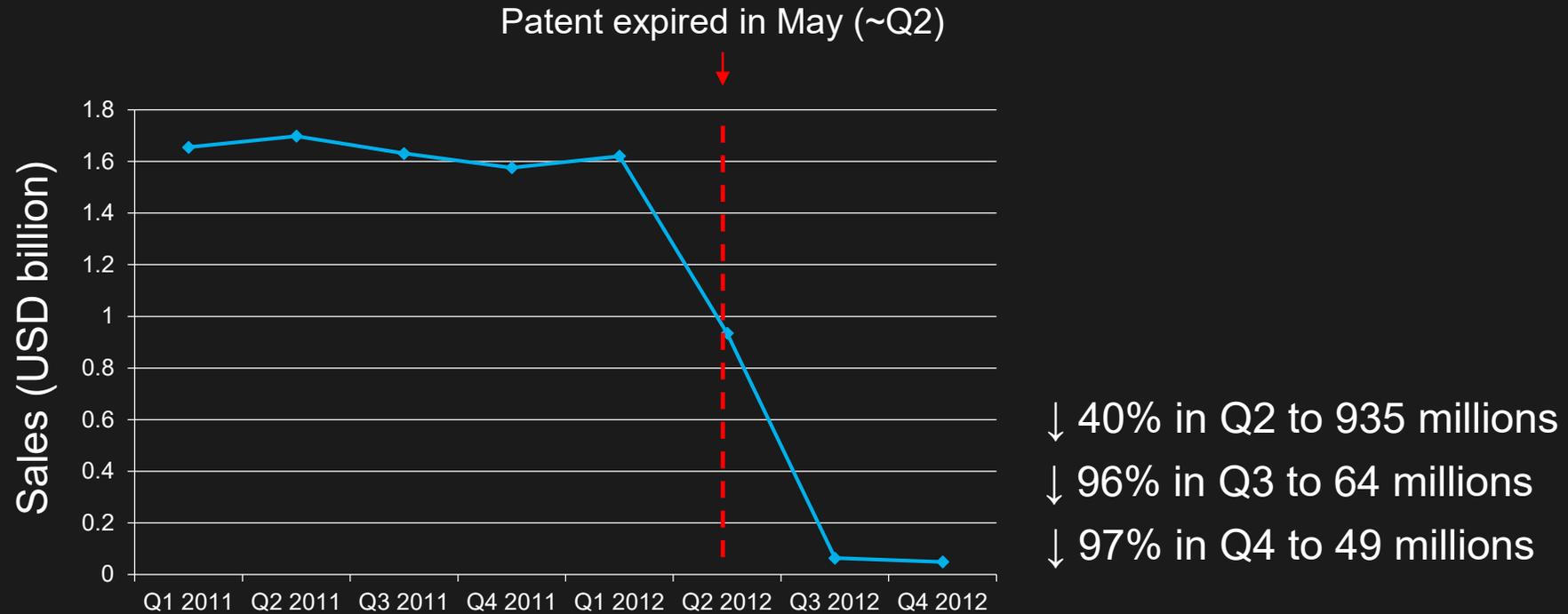
Expiry of Exclusive Right

- Plavix® (clopidogrel bisulfate)
 - Antiplatelet agent - prevents blood clots in heart attack
 - Marketed worldwide in nearly 110 countries
 - Top or second best-selling drug for years
- May 17, 2012
 - US Patent expired
 - FDA approved generic versions of Plavix



<http://articles.mercola.com/sites/articles/archive/2012/10/10/plavix-health-risks.aspx>

What Happened to Retail Sales?

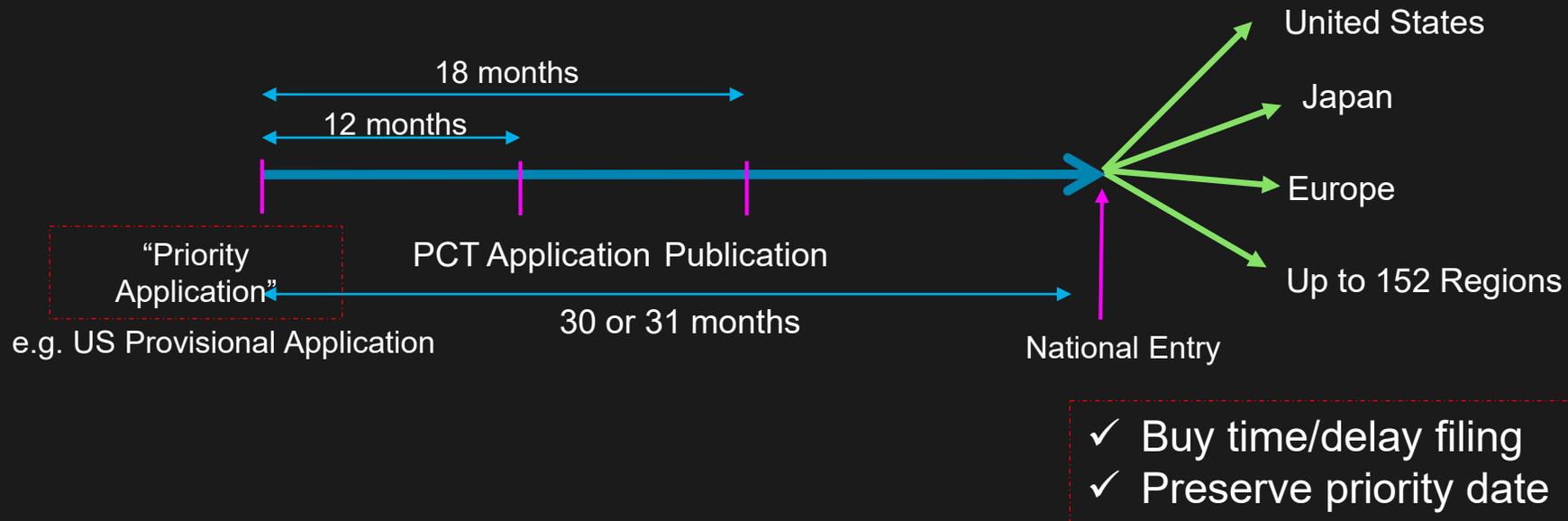


<http://www.drugs.com/stats/plavix>
<http://www.reuters.com/article/2012/10/24/us-bristolmyers-results-idUSBRE89N0NL20121024>

IPRs – International Aspect & Timing

- IPRs are *territorial* in nature. Time is of the essence.
- Paris Convention
 - Right to claim the priority of a prior application within 6 (TM/industrial designs) or 12 months (patents/utility models) (177 regions)
- Patent Cooperation Treaty (PCT)
 - One PCT application → reserve right to file applications in up to 152 regions
 - File, prosecute, grant and maintain *independently* in each region of interest
- Madrid System
 - One *existing* TM application → simultaneously seek registration in up to 115 regions
 - Save costs & procedures for individual national filings
 - No protection if, during the first 5 years, the initial TM application is finally withdrawn, refused, or the registered TM is cancelled

PCT – International & National Stage



Note: Countries/regions that are not members to the PCT are not covered by the PCT scheme, e.g. Taiwan, Argentina

Inventorship

- Determination of Inventorship
 - Conception of the invention or the inventive idea is established when “the invention is made sufficiently clear to enable one skilled in the art to reduce it to practice without the exercise of extensive experimentation or the exercise of inventive skill”
- Different than Ownership
- Different than authorship on scientific publication
- In the US, false inventorship with deceptive intent may render a patent unenforceable

Ownership

- Determination of ownership: the right of the patent
- Ownership is transferrable, and owners stand to sue against infringement
- CUHK IP policy



POLICY DOCUMENTS

Home > Policy Documents

Policy Documents

With effect from 1 August 2020, the Policy on Research, Intellectual Property and Knowledge Transfer has been separated into two policies:

[Policy on Research](#)

[Policy on Intellectual Property](#)

For details on the policy revamp, please click [here](#).

5. Intellectual Property Created by Staff

Ownership of Intellectual Property by Law

5.1 In the course of fulfilling Staff's duties, Intellectual Property may be Created. In accordance with the laws of Hong Kong, Intellectual Property Created by employees, i.e. all Staff Members of the University, in the course of their employment and within the scope of the duties described in their contract of employment is owned by the University. However, the University will not assert ownership of certain Intellectual Property as provided under Paragraphs 5.2, 5.6 and 5.7 below.

Special ownership arrangement of Scholarly Work

5.2 (a) Subject to Paragraph 5.2(b), the Copyright in Scholarly Work is owned by Staff Member.
(b) Subject to ownership arrangement(s) agreed with publishers, Staff grants to the University an irrevocable, free, perpetual, non-exclusive, worldwide licence to use, reproduce, translate and disseminate (including by electronic, on-line, and other



Ownership vs. Inventorship: Board of Regents v. Taborsky: Background

- Petr Taborsky:
 - Undergraduate chemistry and biology student at University of South Florida (USF)
 - Worked as student assistant in 1987 on project sponsored by Florida Progress Corporation (FPC) to determine if bacteria could clean clinoptilolite so that it could be reused for wastewater treatment
- Dr. Robert Carnahan
 - Dean of Research at USF overseeing the project
- After the FPC project ended, Taborsky ask Carnahan for permission to continue research on his own in hope of using it as his Master's thesis



Ownership vs. Inventorship: Board of Regents v. Taborisky: Background

- Petr Taborisky discovered that superheating clinoptilolite to 850°C greatly enhanced its ability to absorb ammonium which is completely different from the FPC project but of potential value to FPC
- Showed his results to Carnahan who told him “This could be worth millions” but USF was entitled to his work (Shop rights)
- In contrary, his patent attorney told him since the work is outside the scope of the FPC project it should belong to him
- FPC offered Taborisky a job and first inventor on patent application but Taborisky was not content that the company could fire him at will
- Taborisky therefore filed and obtained 3 US Patents 5,082,813, 5,162,276 and 5,304,365
- Dr. Robert Carnahan left several intimidating messages on Taborisky’s answering machine demanding him to turn over his lab notebooks to USF and threatening criminal prosecution*
- Due to this pressure from Carnahan and USF, Taborisky took all his notes and notebooks and fled without even taking his final exam

What do you think would result?

*Based on Taborisky’s account

Ownership vs. Inventorship: Board of Regents v. Taborsky

- Dr. Carnahan swore in a criminal affidavit that Taborsky had stolen 32 trade secrets from USF
- Taborsky was convicted of second degree grand theft and theft of trade secrets
- Sentenced to 1 year house arrest and 15 years of probation
- After patents were issued to Taborsky, USF filed additional criminal charges contending Taborsky of violating his probation by pursuing his ownership rights
- Judge told him to sign over his first patent to USF within 10 days or go to jail.
- Taborsky refused and sentenced to 3.5 years in prison
- After losing appeals, he served his sentence in 1995
- He spent two months in a maximum security state prison before transferring to a minimum security work release center and was also placed on a chain gang for part of his sentence



https://prospect.org/sites/default/files/styles/thumbnail/public/chaingangap95112101533_1.jpg?itok=CdYaf4Fd

Inventor's Award

Whether an inventor (or a joint inventor) is named as assignee (patent owner) or not, the inventor may still be awarded by

- Sharing in the final return, if any, from subsequent commercialization of the invention via university/company policies
- Recognition through publications and presentations

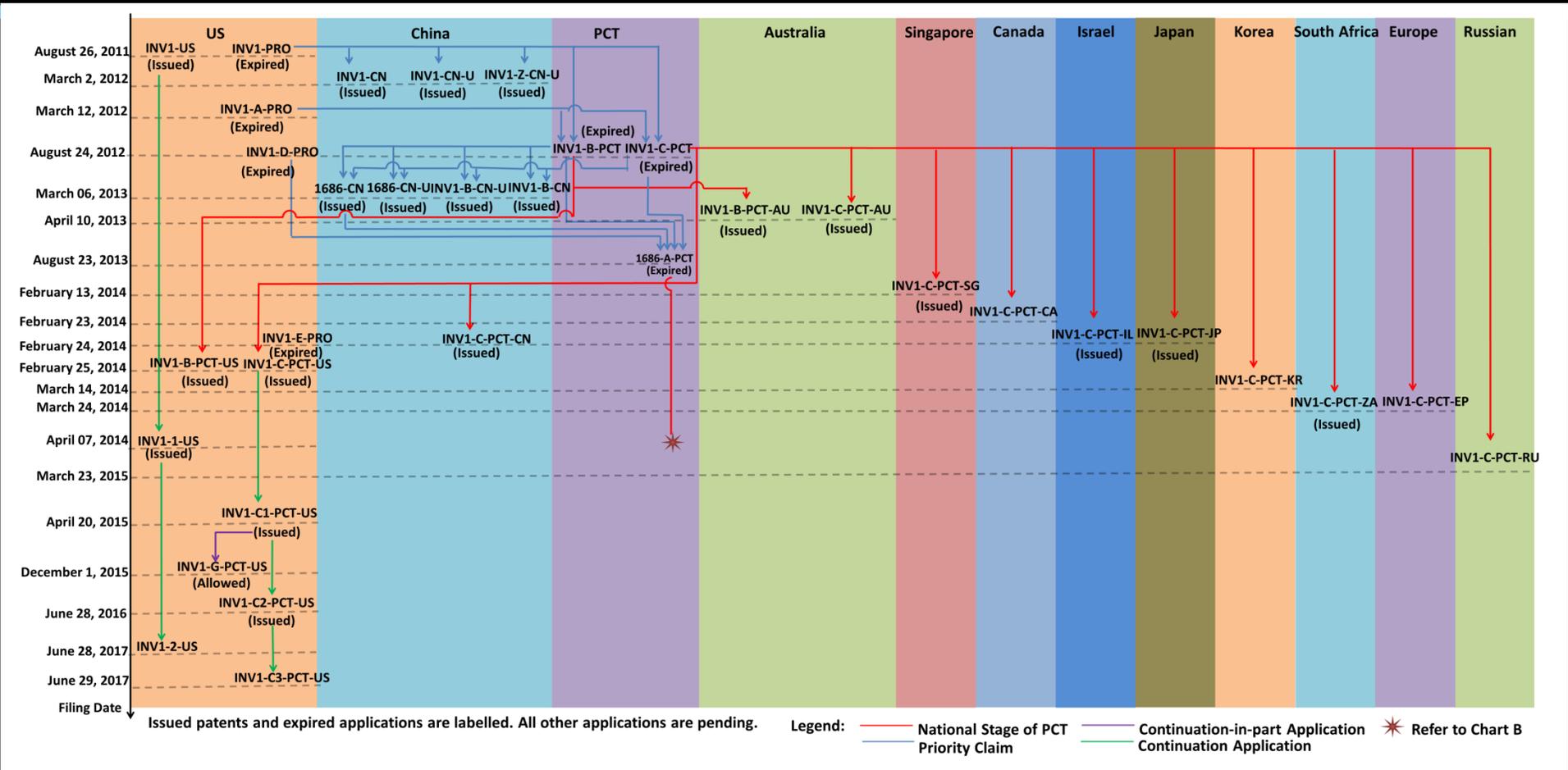


Best Practices of Patent Application

- Designated personnel, “Chief IP Officer”
 - Good Communication Skills
- Do not solely rely on external counsel and attorneys
 - Employment Agreement
 - Are employee inventors obligated to assign inventions to the startup company
 - NDA and Confidentiality Terms
 - Sign NDA with counterparties before disclosing the invention

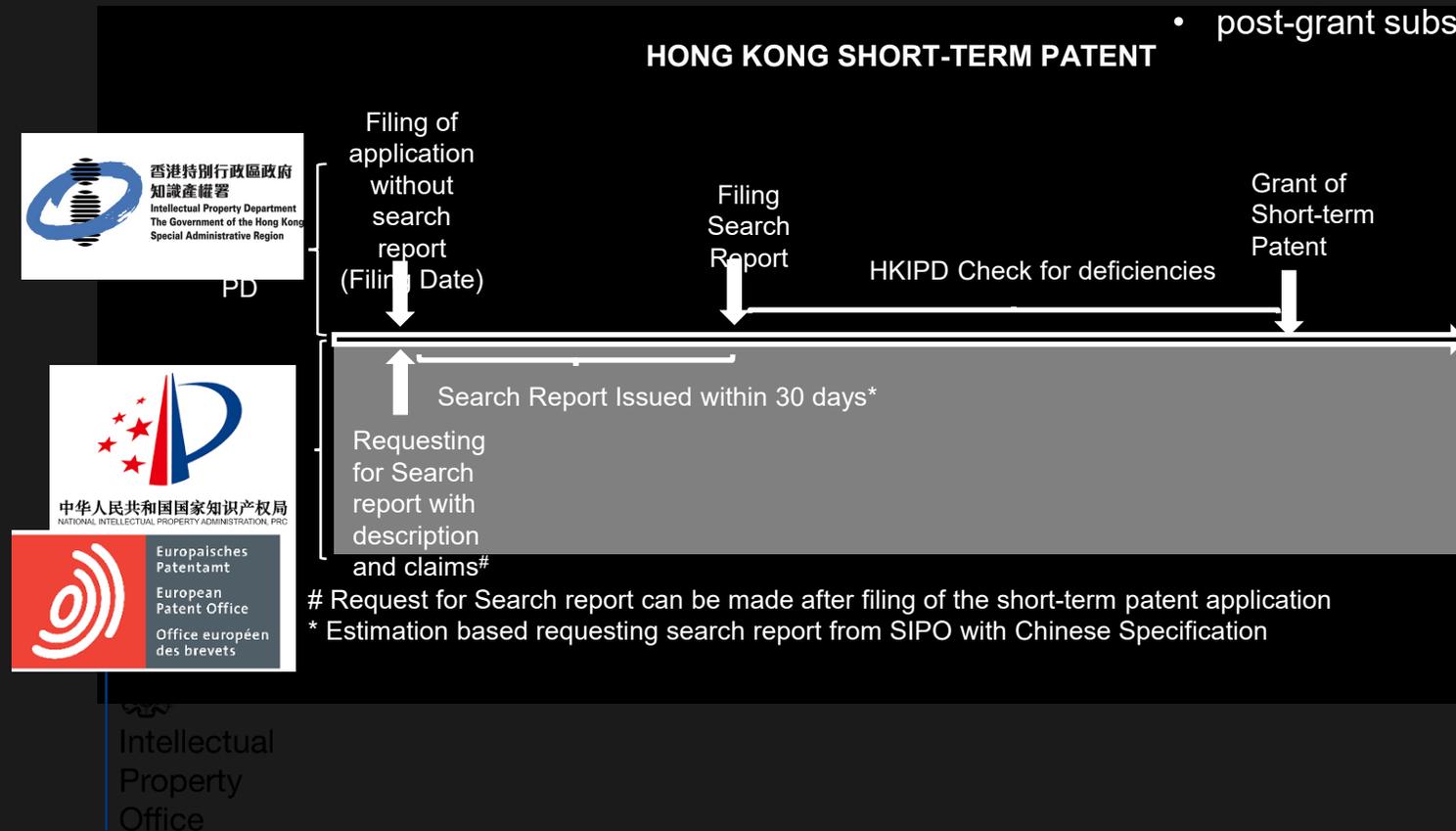
Startup IP Protection (Example #1)

- Research on functional nerves innervating the wall of arteries and catheters
- Over 20 patents issued in US, EP, CN, AU, SG, CA, JP, IL, KR, RU, ZA,
- Over 20 applications pending in above countries, including PCT
- Received multiple rounds of \$\$\$
- From \$300K initial investment to over \$300M value





- 2 independent claims
- post-grant substantive examination

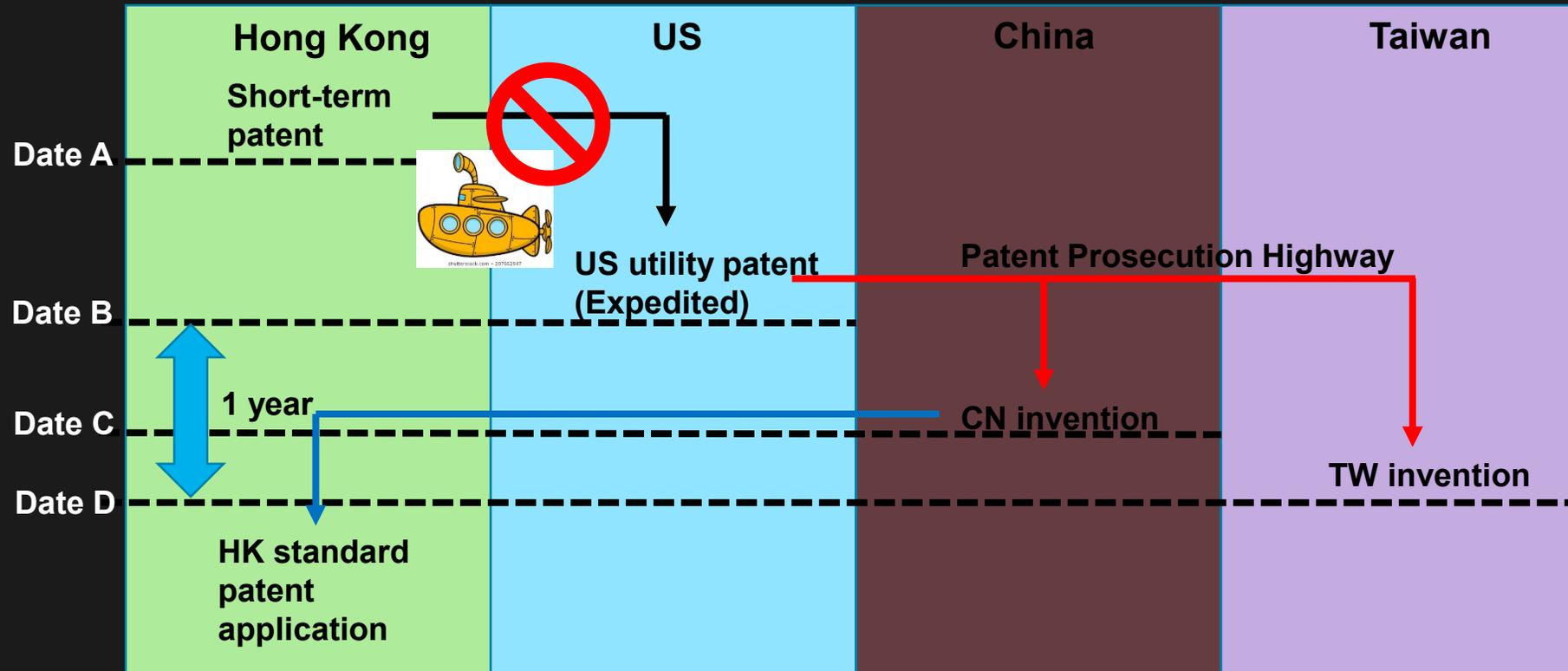


Why HK Patents?

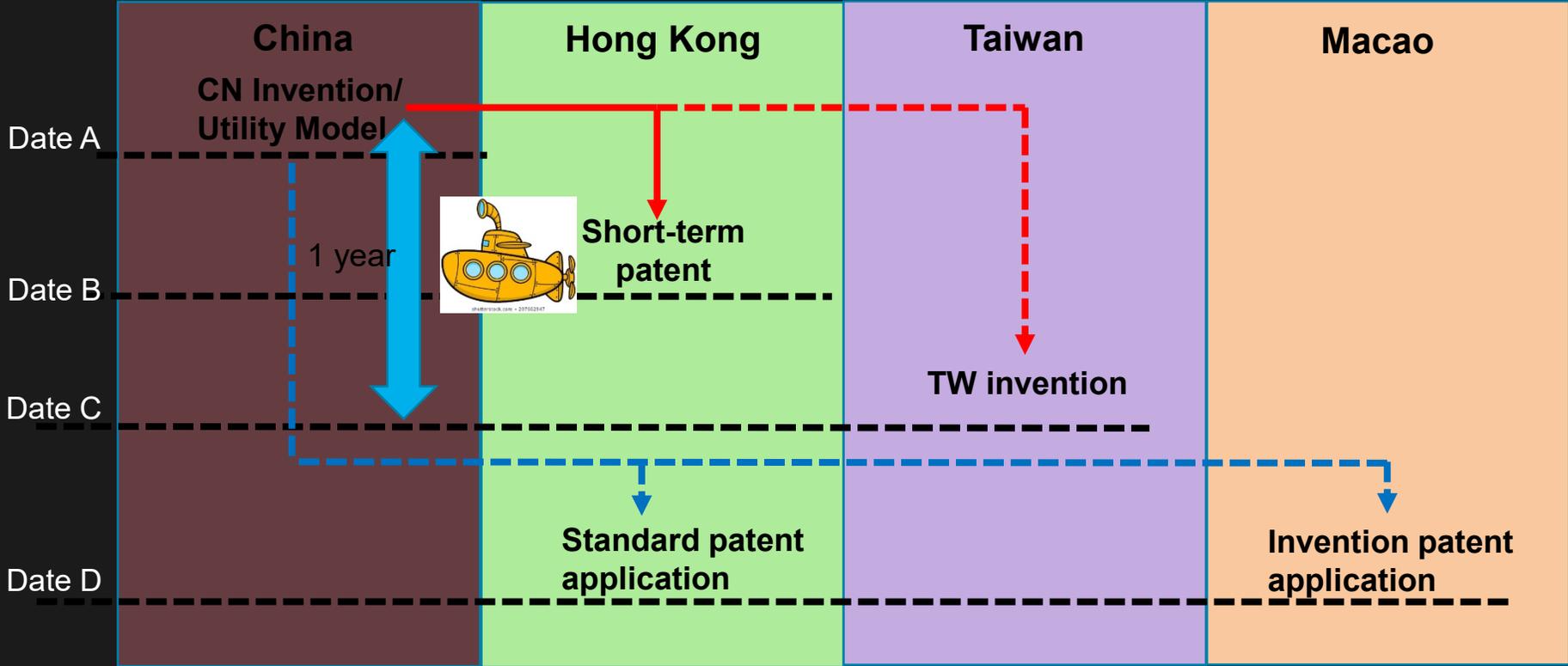
- Short-term patents
 - CNIPA Search Report within 30 days (15 days with extra fees)
 - Publication after submission of search report
 - Priority Claim with 1 year
 - English/Chinese specification



Case Study 1



Case Study 2



THANK YOU!

Any Questions?