

Intellectual Property (IP) Valuation for Biotechnology and Pharmaceutical Industry Sector

Exercise

Skin Cancer Drug

Case Study

Valuation V1

Havana, Cuba
February 5 to 7, 2019

CASE STUDY

Theranostic Biotech is a biotech company conducting R&D for different cancer treatments based on the development of molecules in oncology through the exploitation of endemic plants on Reunion Island that must be functionalized to have properties for targeted actions on cancer cells via radiation activation. The development concerns skin cancer first and then other types of cancers, such as lung, pancreas and prostate.

The patent belongs to an academic lab with the first bricks of the technology.

The patent needs to be negotiated with a Chinese partner who will provide funding in a Joint Venture (JV) for the exploitation of the first application in skin cancers only.

The purpose of the valuation is to assess the value of the patent in the context of this negotiation and then to use this value in the contribution in kind to the JV (the lab will contribute with the value of the above-mentioned patent to the establishment of the JV, while the Chinese partner will invest financial resources).

The JV should concern only Europe, China and United States of America for exploitation, the rest of the world shall be exploited by another partner.

We assume that the treatment will be used only once and will be sold for €10,000.

We have estimated the cumulative clinical risk from phase I to Marketing Authorization to be 11%. The drug entered phase I clinical development last month.

Diagnosis rate is at about 80%.

Capability of treatment is at about 20%.

Patent maintenance costs are up to €10,000 until 2025 and will reach €15,000 € after 2025, until patent expiration (21/01/2036).

Tax rate is 25%.

A statistic concerning the disease is provided.

A benchmark study is provided.

A statistic related to the clinical trials for cancer treatments is provided.

A discount rate is provided.

1. Please use the risk adjusted Net Present Value (rNPV) method to value the patent in its simplest way.
2. Theranostic Biotech has finally decided not to partner the technology with the Chinese player. Instead, it is considering a financing round with a European Venture

Capital firm. Theranostic Biotech will use the value of the patent (calculated in exercise 1) plus a step-up of 20% as its pre-money valuation. If the VC firm invests €2 million in Theranostic Biotech, what % of the company will the current shareholders of Theranostic Biotech have after the financing round?

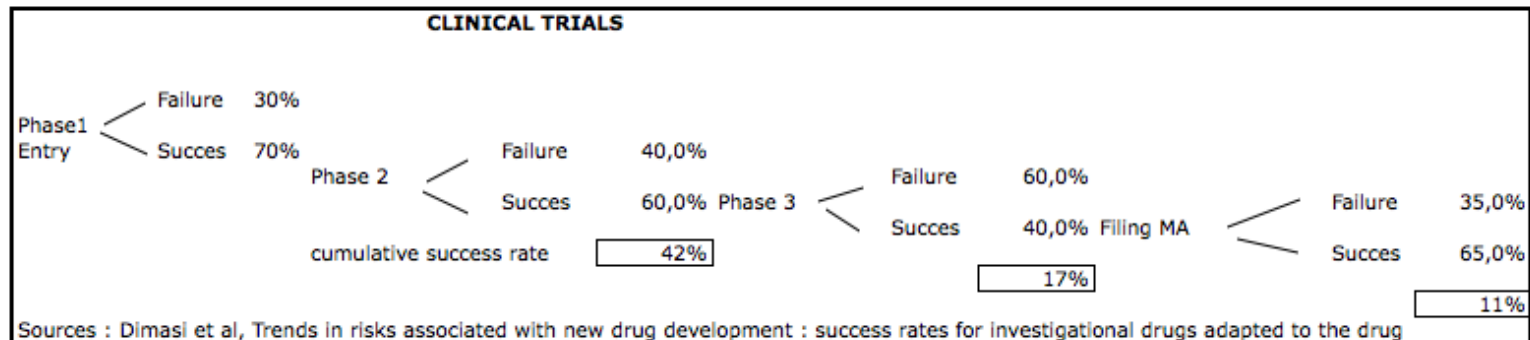
STATISTICS

Population	Value	http://gco.iarc.fr/today/online-analysis-sunbu
United States of America	69 109	Skin cancers statistics world wide
Germany	16 884	
United Kingdom	14 445	
Australia	12 265	
Italy	10 012	
France (metropolitan)	9 871	
China	9 814	
Russian Federation	8 717	
Brazil	6 172	
Canada	5 382	
Spain	5 004	
Netherlands	4 804	
Sweden	2 911	
Ukraine	2 792	
Poland	2 583	
Switzerland	2 484	
New Zealand	2 473	
Czech Republic	2 194	
India	2 103	
Mexico	2 031	
Belgium	1 941	
South Africa	1 858	
Denmark	1 596	
Turkey	1 552	
Norway	1 506	
Colombia	1 488	
Argentina	1 460	
Japan	1 371	
Austria	1 334	
Finland	1 208	
Romania	1 121	
Hungary	1 117	
Israel	1 111	
Portugal	1 101	
Indonesia	1 069	
Serbia	1 016	
Ireland	859	

BENCHMARK

Agreement N°	Technology	Agreement used as benchmark	Licensor	Licensee	Royalty upfront	Min Royalty %	Max Royalty %	Base
1	cancer treatment	YES	Lerias Oy	Anthra Pharmaceuticals, Inc	\$	1,00%	12,00%	sales
2	cancer treatment	YES	FEMENIQUE Corp	Mova Labs	\$	2,00%	8,00%	net sales
3	cancer treatment	YES	OSI Pharmaceuticals	Genentech Inc	\$	5,00%	5,00%	sales
4	cancer treatment	YES	Center for Innovative Technology	Allos Therapeutics, Inc	\$	1,25%	1,25%	Sales
5	cancer treatment	YES	NeoPharm	Pharmacia & Upjohn Cie	\$	5,00%	8,00%	sales
6	cancer treatment	YES	Kuslima Shogen	Alfacelle Corp	\$	5,00%	5,00%	gross Sales
7	cancer treatment	YES	Ohio State University	AVI BioPharma	\$	2,00%	5,00%	net sales
8	cancer treatment	YES	Techniclone Corp	Schering AG	\$	12,00%	12,00%	Net sales
9	cancer treatment	YES	Wayne State Univ	SafeScience	\$	2,00%	2,00%	net sales
10	cancer treatment	YES	Lane Bray	IsoRay Medical Inc	\$	1,00%	2,00%	Gross profits
11	treatment of cancer, infectious diseases and autoimmune disorders	YES	American Home Products corp	Immunex Corp	\$	2,00%	2,00%	net sales

CLINICAL TRIALS STATISTICS



DISCOUNT RATE

Capital Asset Pricing Model	
Risk Free Rate (OAT)	1,938%
Risk Premium	5,57%
beta	1,21
Small entity	5,00%
Discount Rate	13,67%