

Antiviral Patents – How prepared are we to combat novel viral diseases?



Presenters



Gene Quinn
President & CEO
IPWatchdog, Inc.



Andrew Berks
Partner
Ostrolenk Faber LLP



William Mansfield
Head of Consulting & Customer
Success at PatentSight –
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For Discussion

Today, like so much of the rest of the world, the United States is faced with many shortages due to the coronavirus pandemic, including personal protective equipment, basic medical supplies, and qualified medical staff. The lack of treatments or vaccine is a huge problem, as is the lack of a quick, inexpensive, reliable test for the virus. A test for the virus is a diagnostic method, and that is a big problem for U.S. patent laws because diagnostic methods are simply not patent eligible in the United States.

Many companies are working very hard to address this invisible threat. Johnson & Johnson is working with the government on a promising vaccine they hope to be able to rush to market for emergency use by early 2021, and Gilead has a very strong portfolio of antivirals, with Remdesivir leading the way. By analyzing both the quality and quantity of the patent portfolios of these leading manufacturers and researchers, it is possible to evaluate the companies and research institutes that are at the forefront of finding vaccines and cures for potentially deadly viral diseases.

During this webinar we will discuss: (1) The entire technology field and key players in antiviral market; (2) Review of selected companies with coronavirus related technologies; (3) Portfolio landscaping of global pharma leaders in this technology field; and (4) Poor policy decisions by the Supreme Court that have contributed to the United States and the world being in a precarious position to handle a global pandemic.

Hospitals 'Already Stretched To Capacity' Shift Into Surge Mode But Many Warn Coronavirus Patients Will

Coronavirus spreading fastest in UK in London

Latest details of the spread of Covid-19 in the UK capital, the government's response, and its impact on families and businesses

- [Coronavirus - latest updates](#)
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Coronavirus: The Latest Problem Big Pharma Won't Solve

COMMENTARY Ellen 't Hoen Updated Feb. 7, 2020 7:48 am ET / Original Feb. 7, 2020 7:48 am ET



Time for new pharmaceutical innovation models.

The pharmaceutical industry

BIOTECH

A detailed guide to drugs and vaccines in development

By DAMIAN GARDE @damiangarde / MARCH 2, 2020

Economy / China Economy

Coronavirus: China's central bank will use 'variety of measures' to cut loan costs for firms

- The People's Bank of China will use monetary tools to ensure banks have sufficient liquidity, while also implementing interest rate reforms
- Deposit benchmark rate will also be leveraged to help small businesses cope with impact of the pandemic

Coronavirus has

stock
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poses lockdown
avel ban

Ursula von der Leyen calls for end to non-essential travel as governments impose measures rarely seen outside wartime

Chinese firm copies Chinese promising drug against the n

by Angus Liu | Feb 12, 2020 10:28am

Coronavi Car makers in th

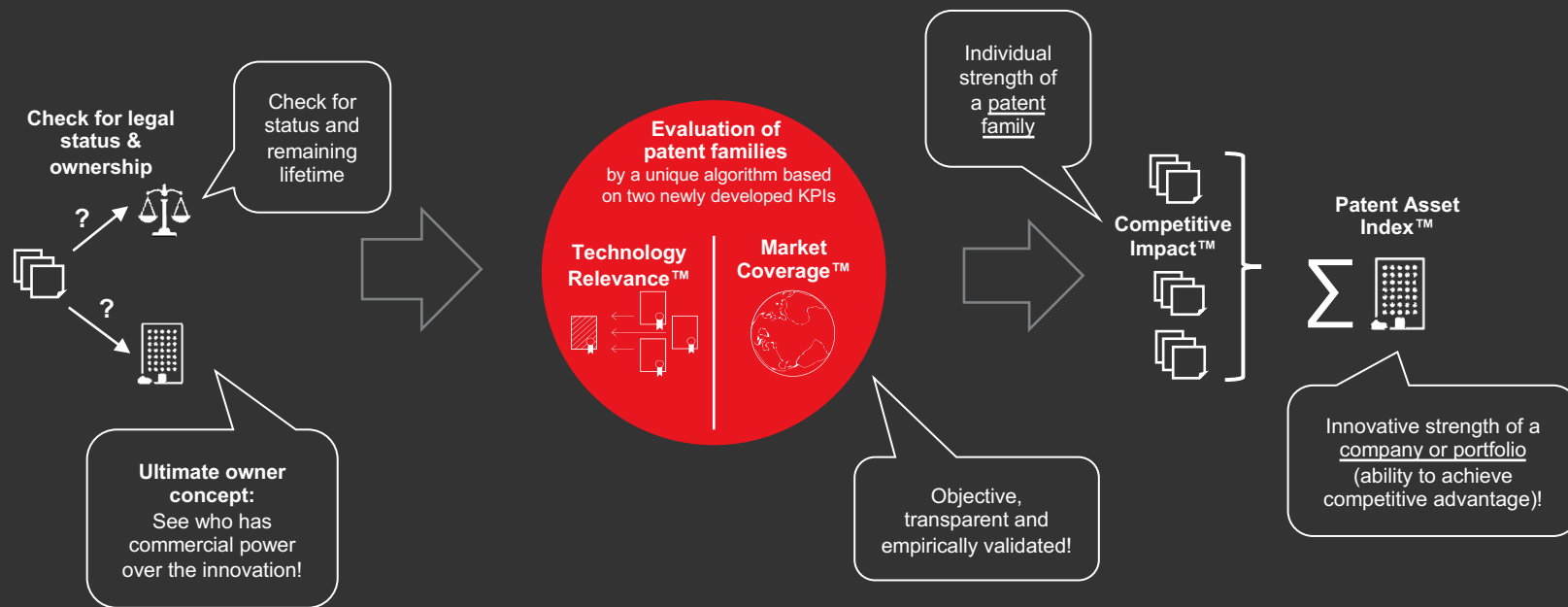
THE CORONAVIRUS CRISIS

How Coronavirus Is Affecting The U.S. Pharmaceutical Supply

March 12, 2020 · 5:00 AM ET

- **How PatentSight metrics evaluate the portfolio strength**
- **Portfolio overview of technology field and key players in the field of antivirals**
- **Portfolio review for selected companies who have technologies related to Coronavirus**

Our Approach



Technology definition - antiviral technology

- Main field of antiviral technology

IPC : A61K 31, A61K 39/00, A61K 39/395

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IPC : A61P 31/12

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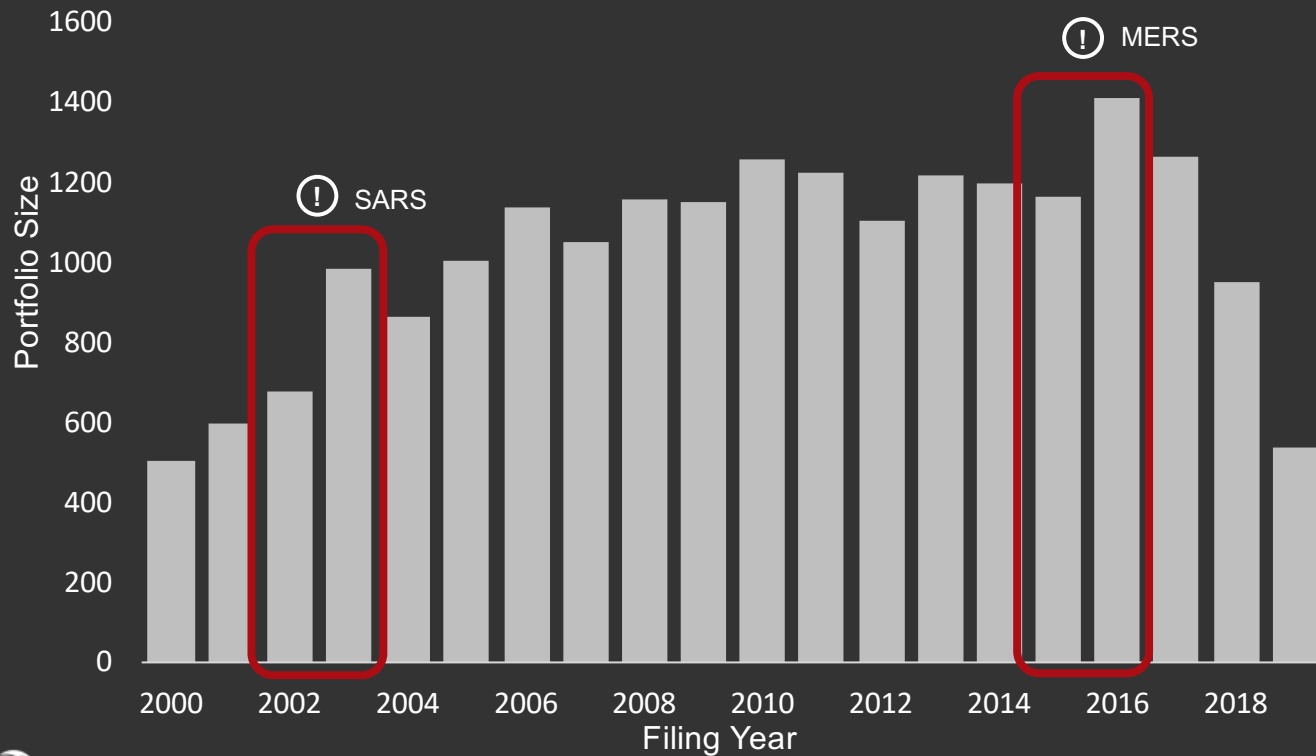
IPC : A61P 35/00

- Sub-field : Corona related virus

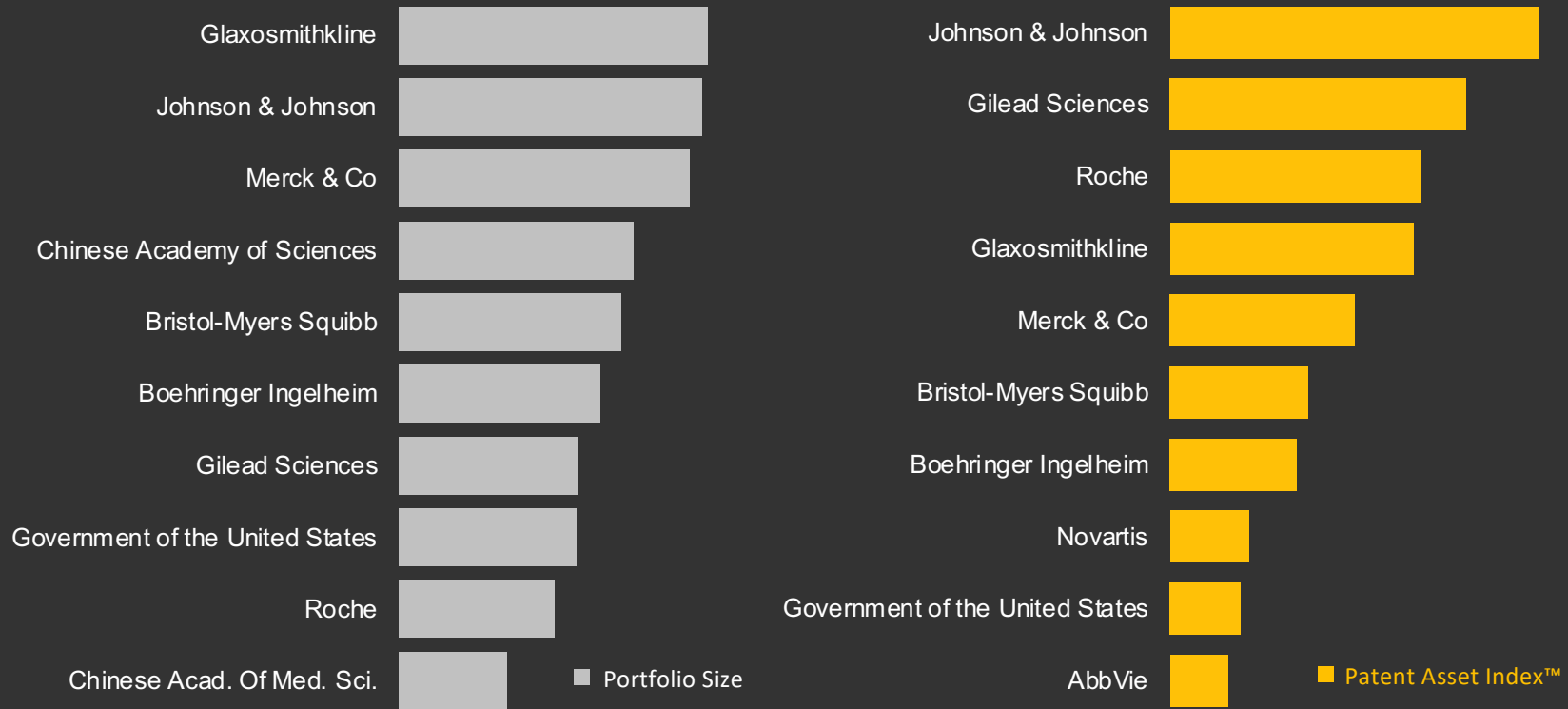
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**FULL TEXT(TAC) : (CORONA_VIRUS* OR
EBOLA_VIRUS* OR MARBURG_VIRUS* OR
SARS* OR MERS OR RESPIRATORY
SYNCYTIAL VIRUS* OR JUNIN VIRUS* OR
LASSA FEVER VIRUS* OR NIPAH VIRUS* OR
HENDRA* OR SARS-COV* OR MERS-COV* OR
MERS_VIRUS* OR SARS_VIRUS* OR 2019-
NCOV OR NUCLEOTIDE ANALOG*)**

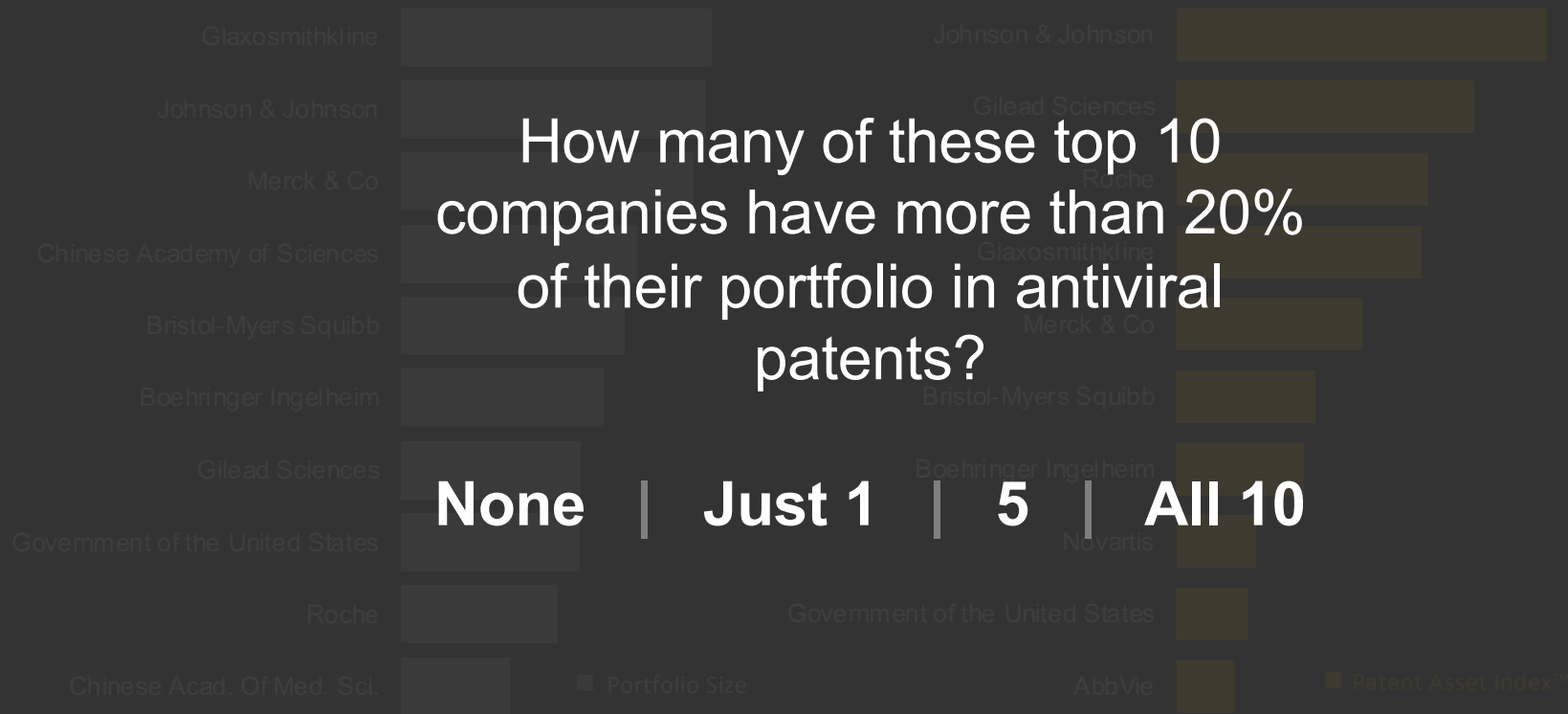
Filing trend in antiviral technology



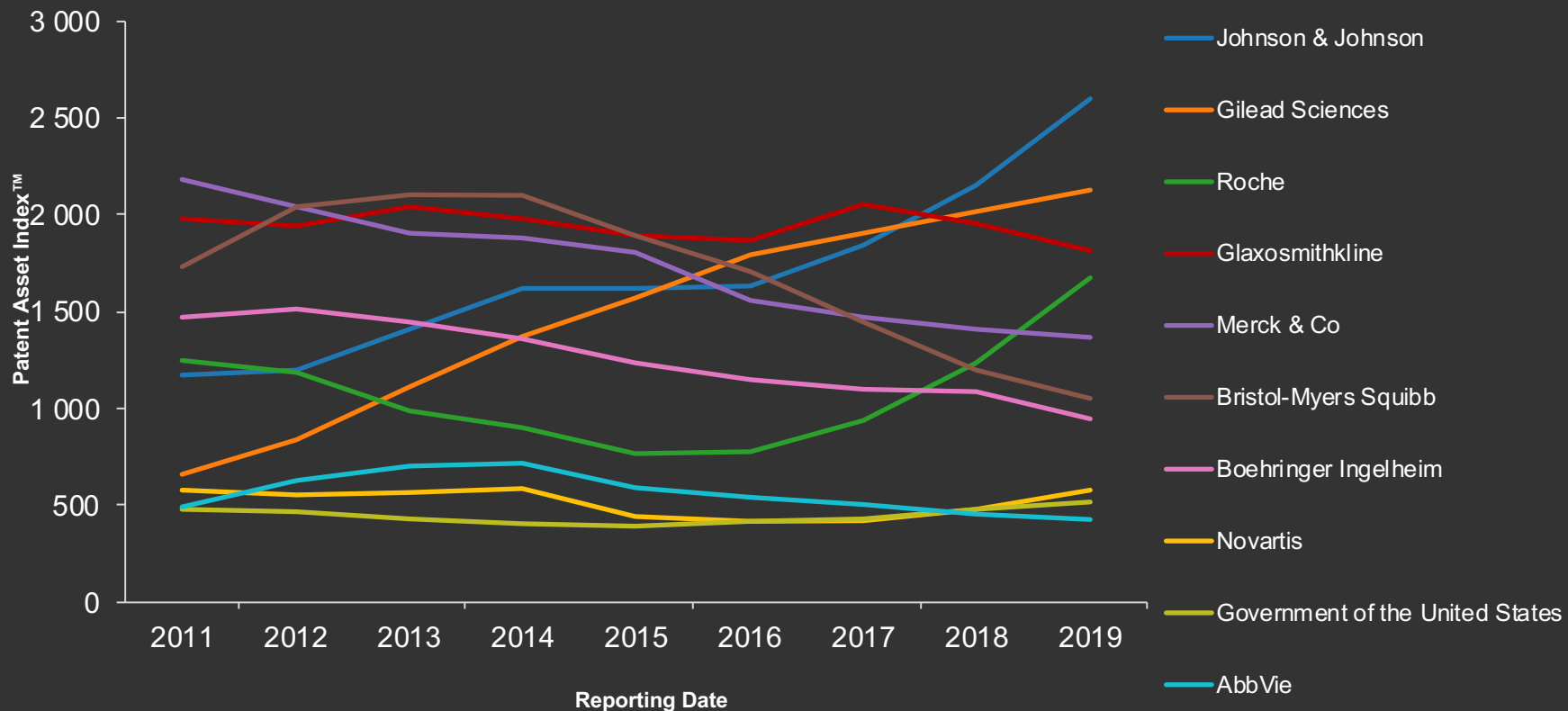
Who are the Top 10 players in antiviral technology field?



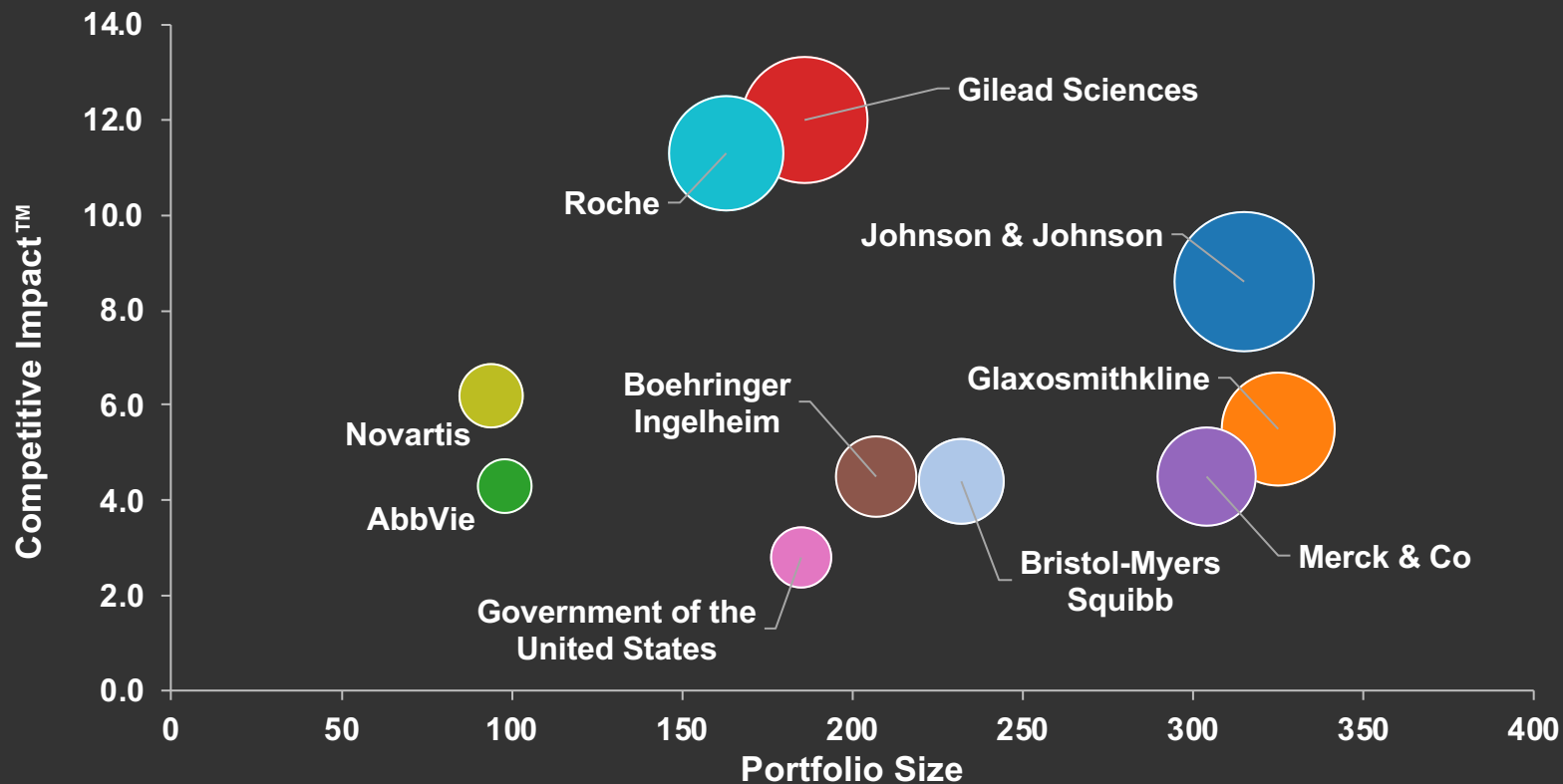
Who are the Top 10 players in antiviral technology field?



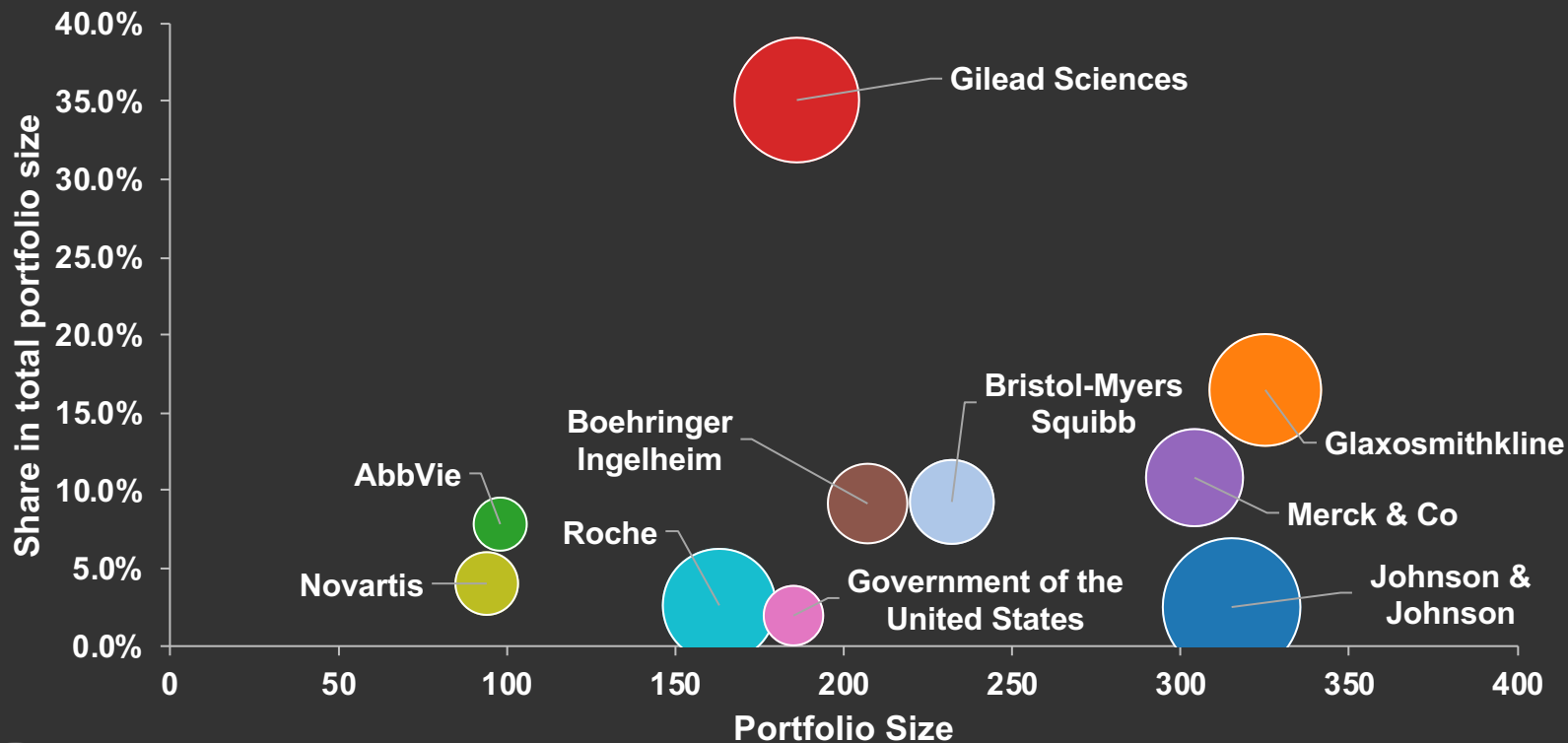
Development of portfolio strength of top 10 players



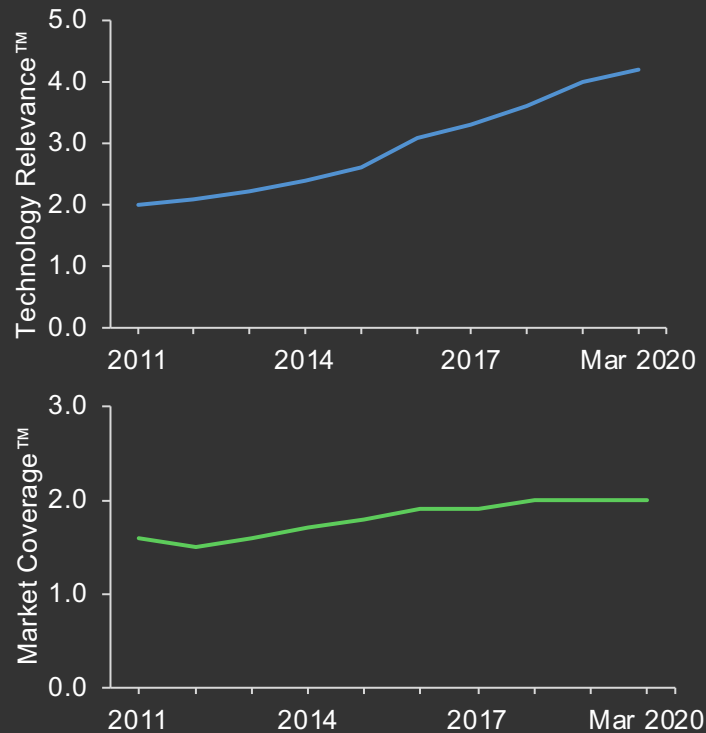
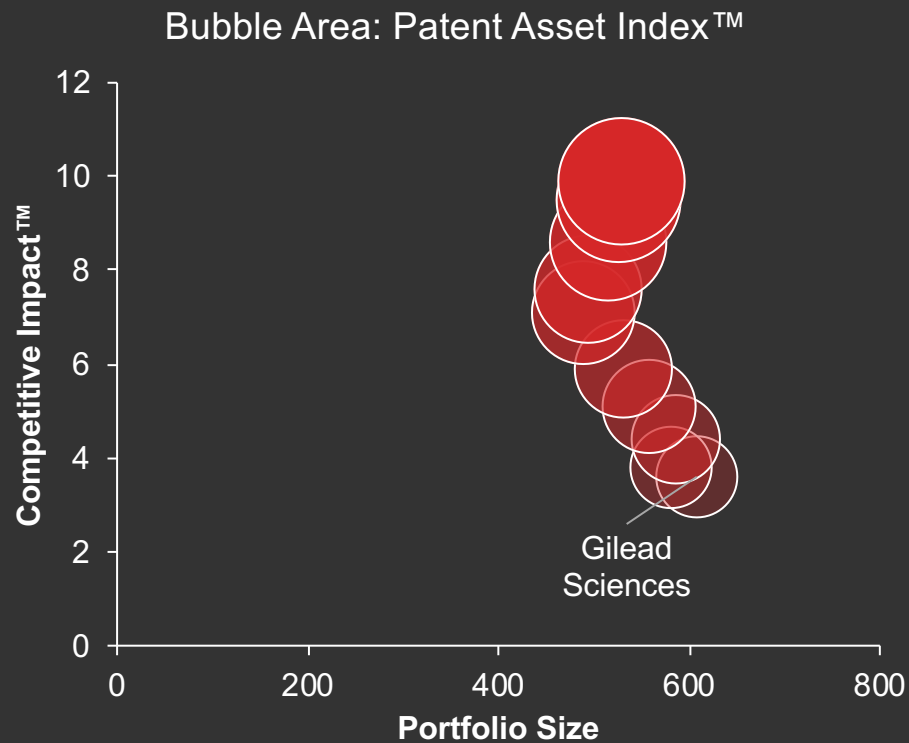
Strategic Positioning of Top 10 Players



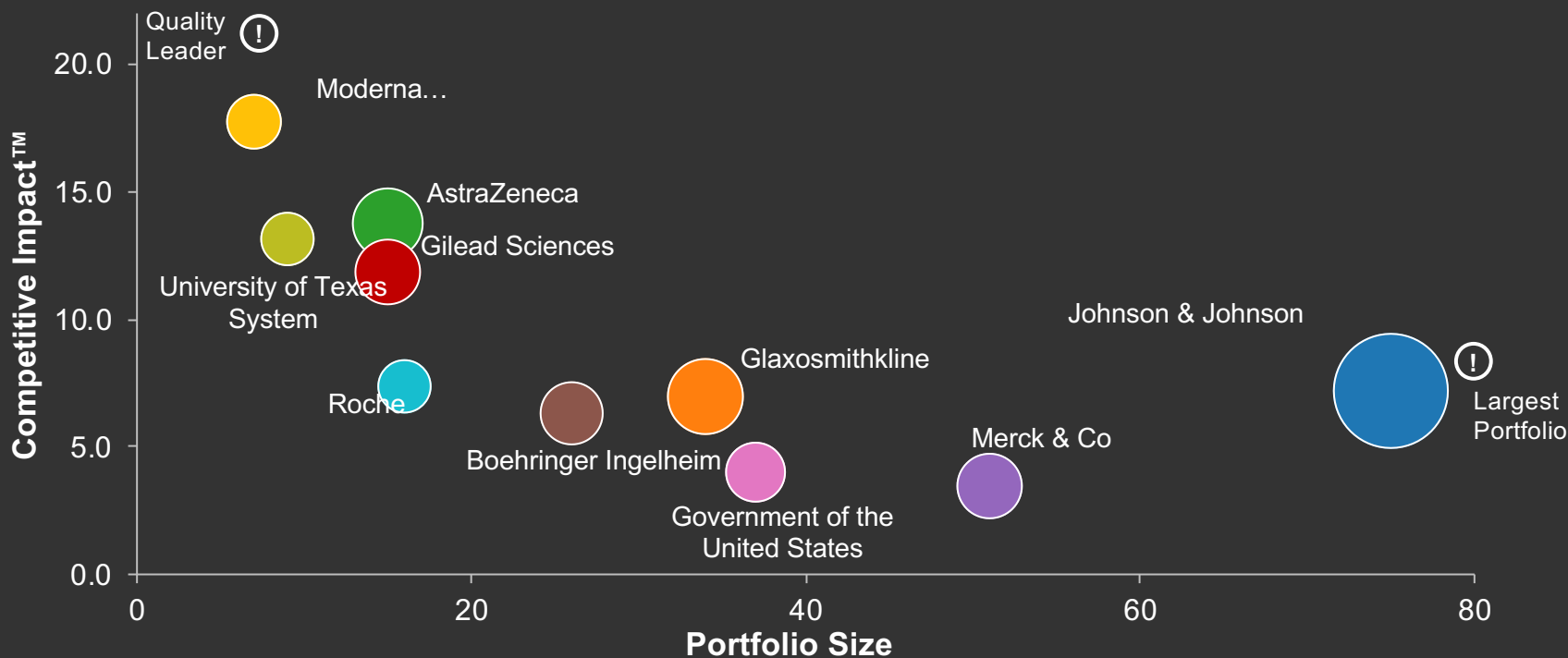
How much R&D effort do top players put into antiviral field from their entire portfolio?



Who is Gilead Science?

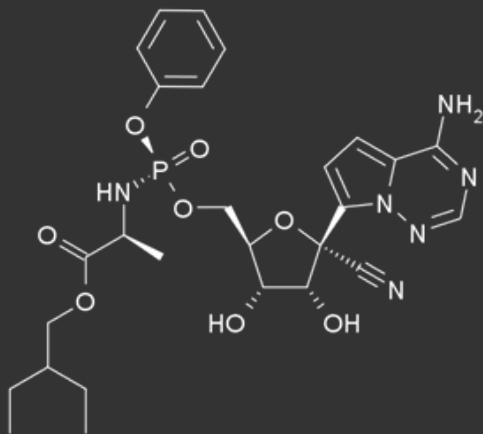


Who has the highest average quality and the largest patent portfolio in the field of anti-corona related viral infection?



Portfolio of Gilead Science

- 15 active patent families in corona related technology



Source: Remdesivir, Wikipedia

Use Patent	Citation	Substances
Pharmaceutical	Page 7/10 US 2019/0144477 A1	Remdesivir
Pharmaceutical	Page 7/10 US 2019/0144477 A1	Remdesivir phosphate
Pharmaceutical	Page 7/10 US 2019/0144477 A1	Remdesivir sodium salt
Pharmaceutical	Page 7/10 US 2019/0144477 A1	Remdesivir
Pharmaceutical	Page 7/10 US 2019/0144477 A1	Remdesivir
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Pharmaceutical	Page 7/10 US 2019/0144477 A1	Remdesivir
Pharmaceutical	Page 7/10 US 2019/0144477 A1	Remdesivir

Source: Reaxys

Portfolio of Gilead Science - Remdesivir

Family of EP3212174.A1 et al.

● Methods for treating filoviridae virus infections

Provided are compounds, methods, and pharmaceutical compositions for treating Filoviridae virus infections by administering ribosides, riboside phosphates and prodrugs thereof, of Formula IV: The compounds, compositions and methods described herein are useful for the treatment of Marburg virus, Ebola virus

 **Gilead Sciences**

First filing in family 27.10.2015

First publication in family 3.5.2016

In force

Inventors Adrian S

Applicant Gilead Sc

Family of US2018346504.A1 et al.

● Crystalline forms of (s)-2-ethylbutyl 2-(((s)-((2r,3s,4r,5r)-5-(4-aminopyrrolo[2,1-f] [1,2,4]triazin-7-yl)-5-cyano-3,4-dihydroxyt...

The present invention relates to novel salts and crystalline forms of (S)-2-ethylbutyl 2-(((S)-(((2R,3S,4R,5R)-5-(4-aminopyrrolo[2,1-f][1,2,4]triazin-7-yl)-5-cyano-3,4-dihydroxyt...
embodiments, the viral infection is caused by a virus s
Arenaviridae, Coronaviridae, Filoviridae, Flaviviridae, a
US2018346504.A1, original)

 **Gilead Sciences**

First filing in family 27.4.2018

First publication in family 8.11.2018

Pending

Family of US2019083525.A1 et al.

● Compositions comprising an rna polymerase inhibitor and cyclodextrin for treating viral infections

The present disclosure provides a composition comprising Compound 1, or a pharmaceutically acceptable salt thereof, cyclodextrin, and, optionally, pH adjusting agents. (Source: US2019083525.A1, original)

 **Gilead Sciences**

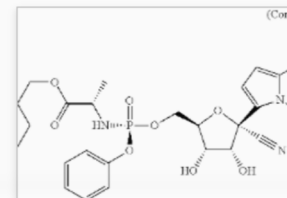
First filing in family 10.7.2018

First publication in family 17.1.2019

Pending

Inventor Larson Nate

Applicant Gilead Sciences Inc





Andrew Berks
Partner
Ostrolenk Faber LLP

How Misaligned Incentives Are Now Killing Us



By **Andrew Berks & Gene Quinn**
April 1, 2020

 [Print Article](#)  6



Facts matter. Policies matter. And thanks to the current coronavirus pandemic the world is learning first hand why the path chosen by the Supreme Court to shut down medical diagnostics in America was a mistake of epic proportions.

Today, like so much of the rest of the world, the United States is faced with many shortages due to the coronavirus pandemic, including personal protective equipment, basic medical supplies, and qualified medical staff. Of course, the lack of treatments or vaccine is a huge problem. Another secular problem is the lack of a quick, inexpensive, reliable test for the virus.



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23. April | Thursday | 18:00 CET | 12:00 pm (noon) EST



Thank you

William Mansfield

Director Consulting and Customer Success

wmansfield@patentsight.com

www.patentsight.com

PatentSight GmbH


Joseph-Schumpeter Allee 33

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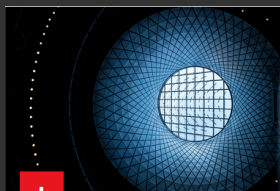
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