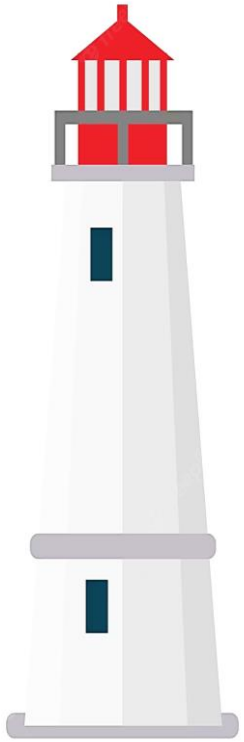
Atlantis AI360:: Search Engine and MarketPlaces for Industry

NLP-driven Automated Content, Insights & Knowledge Generation (Translational 360)



HARSHAWARDHAN (HARSH) BAL, PHD

June 2025

Confidential

Atlantis AI360: Executive Summary

Background and genesis: Meaningful content generation, evidence driven intel and knowledge discovery is very labor intensive and quickly loses currency. Atlantis AI360 allows users to create content in an automated manner, customize from a range of sources, organize information efficiently and generate actionable insights.

- *Atlantis AI360 is a suite of extensible applications that can be applied to any field, across industries – life and non-life sciences, e.g., biotech, pharma, healthcare, technology, finance, education, retail, law, to name a few – in a domain agnostic manner.*

Atlantis AI360 Platform consists of -

(1) **Genie** – Search Engine, an application that searches research data and generates content in an automated fashion on the topic of interest (platform in use)

(2) **NLPac** – Data platform for deep mining of data and discovery of monetizable entities ("**Atlantis AI360 Knowledge Assets**", active, Pfizer as paying customer)

(3) **Beacon** – Dynamic browser that provides interactive, point and click access and graphical representation of search results (basic view available)

(4) **MarketPlaces** - A B2B business portal that allows users to set up own StoreFronts and sell assets (integrated with Genie, wip)

(5) **Business Incubator** – Funding engine for start-ups and growth stage companies (active, 3 paying customers)

(6) **Glass** (NLP based intelligent email client – wip)

Current stage -

1. Core engine (Genie + NLPac + Beacon) prototype is ready and in use
2. Customer outreach actively on-going; excellent reviews from Wall Street Equity Research firms, biopharma companies and academia with proven use cases
3. Four paying US biopharma customers incl., Pfizer, Inc.
4. Currently self-funded and seeking ~$1M; Time to market ~4-6 months

Seeking seed capital to build out enterprise version, go live as a B2B company and build technical and sales team

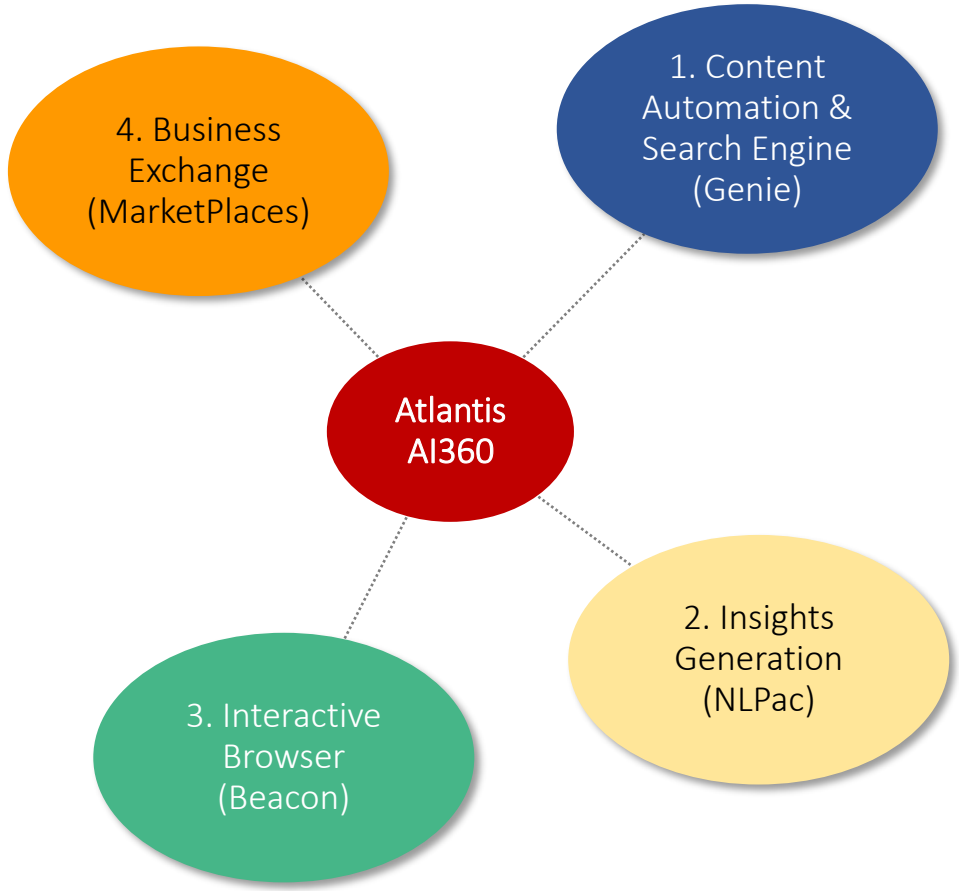
Atlantis AI360: Problem Statement & Solution

Pain-point(s): The customer journey of a data user consists of exhaustive literature survey, hypothesis generation, design and conduct of experiments, validation of hypotheses, review and analysis of data and publication of results, all of which are very manual and repetitive as well as resource and time consuming.

In the life sciences, this is particularly daunting given the complex, multi-dimensional and non-linear nature as well as the high velocity and volume of data.

What is available today are web-based search engines and an extensive collection of sources that provide access to data, however "*access to data*", is hardly the problem today.

The solution: Atlantis AI360 is Google++ - It brings together data automation, NLP driven insights, full translation view into drug R&D, deep mapping of knowledge assets* and a B2B MarketPlace for discovery and trading of those assets. It addresses the full customer journey of a data user. No other platform does this.



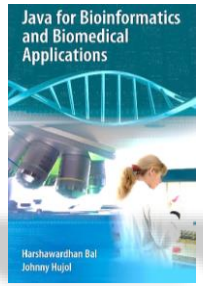
**Knowledge asset examples: Reagents (fine chemicals, enzymes, antibodies, clones, cell lines, disease models e.g., mouse model, zebrafish model, …), experimental therapies, experimental techniques, equipment; KOLs, PIs, patient recruitment sites, …*

Founder Bio

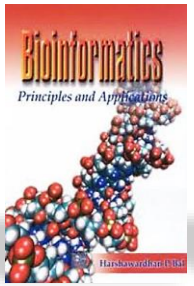
- ~20 years of experience at the intersection of life sciences, healthcare and technology
- Proven leadership skills having established, led and grown businesses from start up to successful enterprises, hiring and mentoring global teams, winning big biopharma and Fortune 500 healthcare and tech clients and delivering innovative solutions
- Previously Managing Director at a biotherapeutics focused venture capital and investment banking firm handling capital raise, licensing and alliances for global biopharmaceutical clients
- Currently President of a Pharmaceutical R&D organization providing expertise in biopharmaceutical product development, corporate strategy, corporate development and operations to advance drug R&D programs from clinic to market for global biopharma industry

Education & Certifications

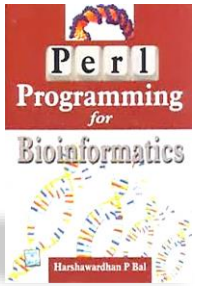
- Executive General Management (Strategy & Finance) - UPenn Wharton School, Philadelphia, PA (2017)
- Strategic Management Coursework - Harvard University, Boston, MA (2001)
- Ph.D. (Biotechnology) - National Institute of Immunology, Jawaharlal Nehru University, New Delhi (1997)
- MS (Pharmaceutical Technology) - Nagpur University, Nagpur (1990)
- FINRA SIE, Series 7, Series 63 Licensed



Springer (2006)

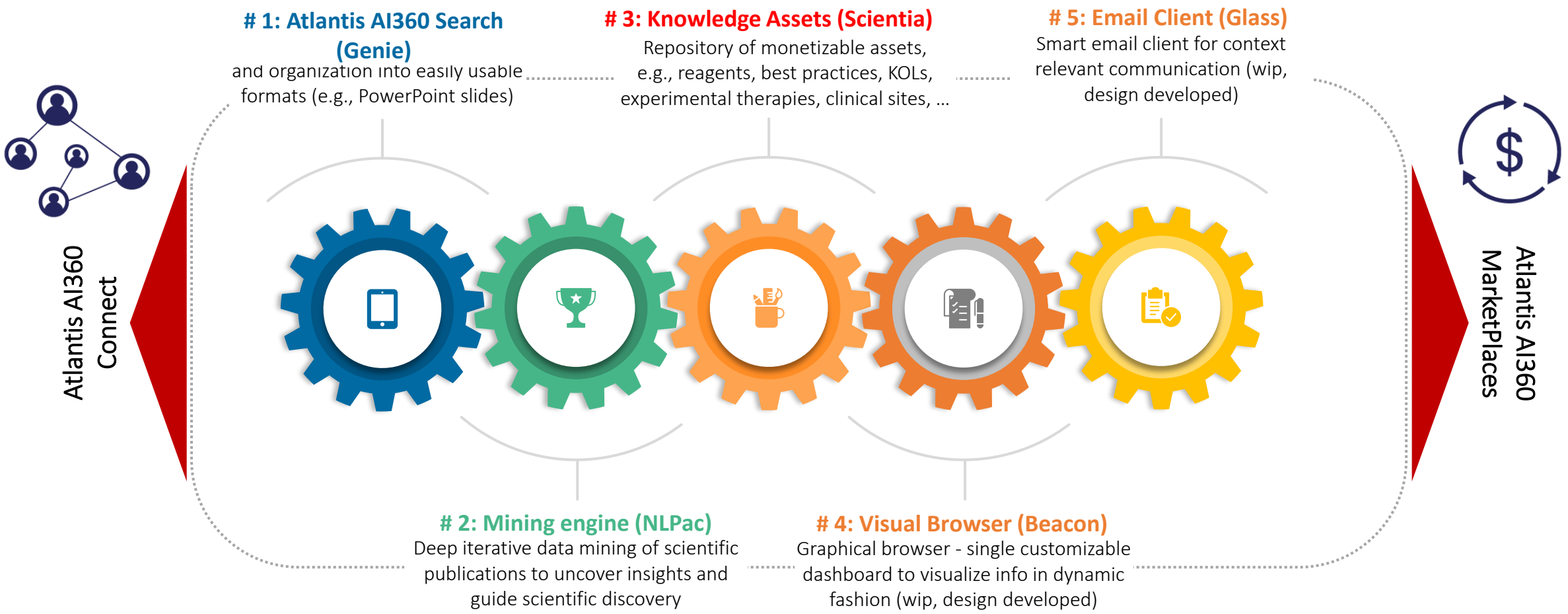


McGraw-Hill (2004)

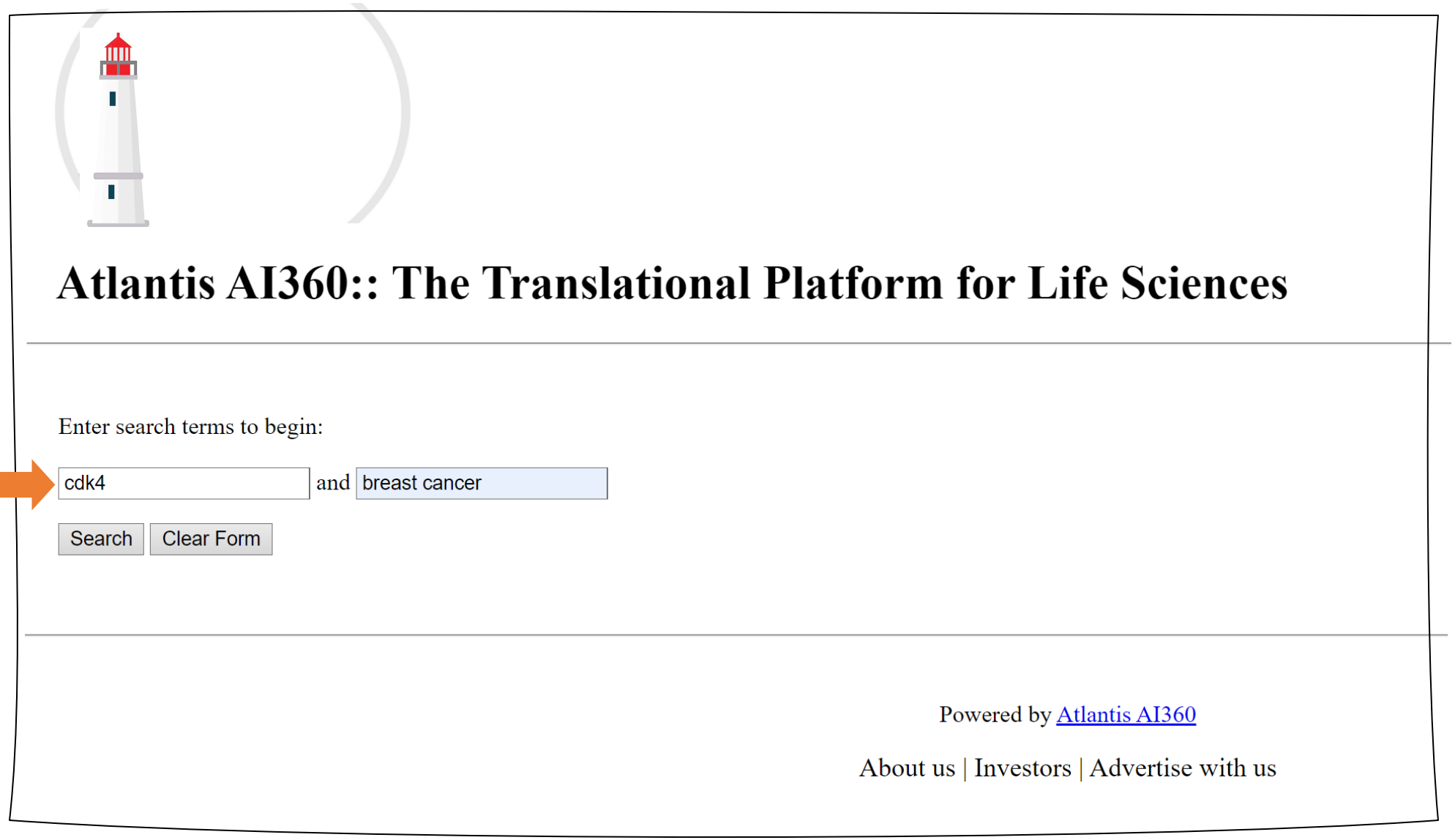


McGraw-Hill (2002)

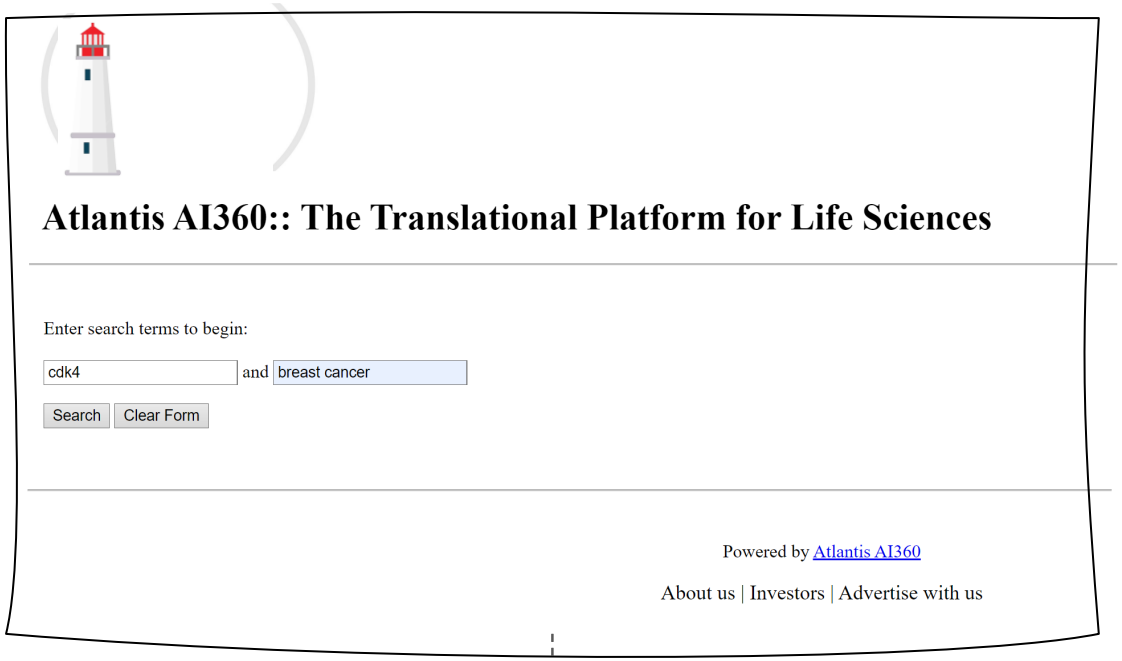
Products and Services:: Automated Knowledge Generation Platform & B2B MarketPlaces

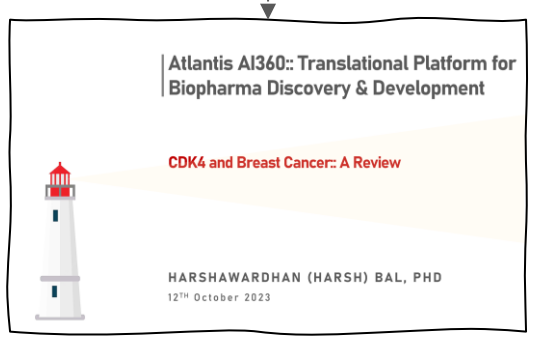


(1) *Atlantis AI360 Connect: Community of researchers united by common pursuit (e.g., NSCLC, Pompe Disease, …) to foster collaboration and joint discovery*
(2) *Atlantis AI360 Search: Automated engine for content generation from customized range of sources, organized and documented efficiently*
(3) *Atlantis AI360 Beacon: Graphical browser for visual representation of results, followed by slicing and dicing, incl., setting thresholds and alerts*
(4) *Atlantis AI360 MarketPlaces: Scientific exchange and reuse of reagents, data, know-how and best practices ("Knowledge Assets")*

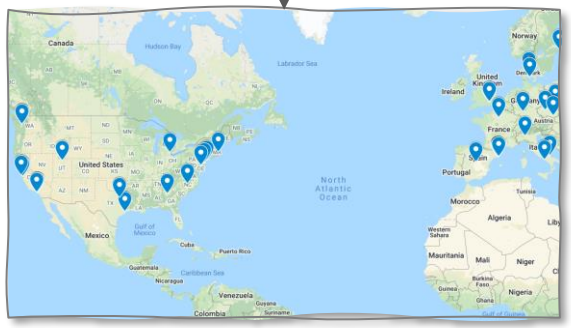

Atlantis AI360:: The Translational Platform for Life Sciences
Enter search terms to begin:
cdk4
and
breast cancer
Search
Clear Form
Powered by Atlantis AI360
About us | Investors | Advertise with us

Products and Services:: Atlantis AI360 Search Engine & Automated Content Generation (Platform ready and in use)



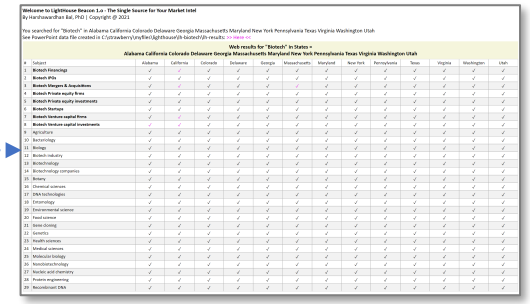


PowerPoint Deck

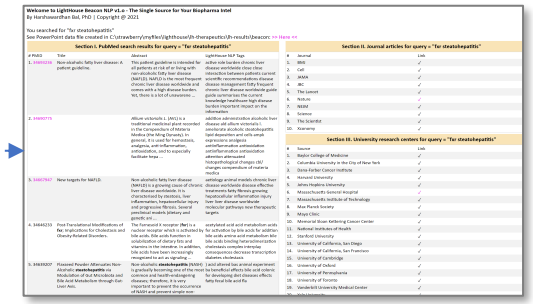


Beacon: Global view

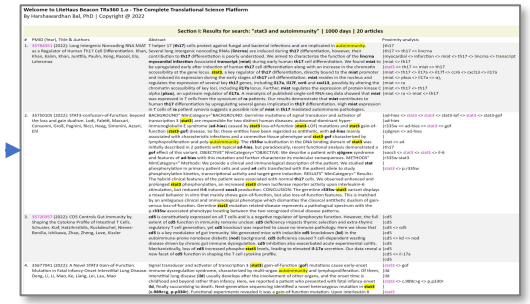
Beacon: Industry view



Beacon: Literature view



Beacon: Molecular view



Products and Services:: Atlantis AI360 Beacon (Interactive Browser for Biopharma - Broad analysis of industry)

Welcome to LightHouse Beacon 1.o - The Single Source for Your Market Intel
By Harshawardhan Bal, PhD | Copyright @ 2021

You searched for "Biotech" in Alabama California Colorado Delaware Georgia Massachusetts Maryland New York Pennsylvania Texas Virginia Washington Utah
See PowerPoint data file created in C:\strawberry\myfiles\lighthouse\lh-biotech\lh-results: >> Here <<

Data on market activity

Full customizable interface and data sources as per user's needs

Clickable links to data sources by State

Deep segmentation of industry

Atlantis AI360 will serve contextual ads from life sciences companies relevant to search terms

Web results for "Biotech" in States = Alabama California Colorado Delaware Georgia Massachusetts Maryland New York Pennsylvania Texas Virginia Washington Utah

#	Subject	Alabama	California	Colorado	Delaware	Georgia	Massachusetts	Maryland	New York	Pennsylvania	Texas	Virginia	Washington	Utah
1	**Biotech Financings**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	**Biotech IPOs**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	**Biotech Mergers & Acquisitions**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	**Biotech Private equity firms**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	**Biotech Private equity investments**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	**Biotech Startups**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	**Biotech Venture capital firms**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	**Biotech Venture capital investments**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Agriculture	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	Bacteriology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Biology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	Biotech industry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	Biotechnology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
14	Biotechnology companies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	Botany	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
16	Chemical sciences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
17	DNA technologies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
18	Entomology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
19	Environmental science	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
20	Food science	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
21	Gene cloning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
22	Genetics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
23	Health sciences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
24	Medical sciences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
25	Molecular biology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
26	Nanobiotechnology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
27	Nucleic acid chemistry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
28	Protein engineering	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
29	Recombinant DNA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Products and Services:: Atlantis AI360 Beacon (Interactive Browser for Biopharma R&D – Cancer therapeutics)

Welcome to LightHouse Beacon NLP v1.o - The Single Source for Your Biopharma Intel
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You searched for "fxr steatohepatitis"
See PowerPoint data file created in C:\strawberry\myfiles\lighthouse\lh-therapeutics\lh-results\beacon: >> Here <<

Clickable links to latest research articles

Atlantis AI360 NLP generated concepts

Atlantis AI360 NLP highlights key terms

Full customizable interface and data sources as per user's needs

Links to select top journals

Links to research groups from select academic R&D institutions

Atlantis AI360 will serve contextual ads from life sciences companies relevant to search terms

Section I. PubMed search results for query = "fxr steatohepatitis"

# PMID	Title	Abstract	LightHouse NLP Tags
1. 34693236	Non-alcoholic fatty liver disease: A patient guideline.	This patient guideline is created for all patients at risk of or living with non-alcoholic fatty liver disease (NAFLD). NAFLD is the most frequent chronic liver disease worldwide and comes with a high disease burden. Yet, there is a lot of unawarene ...	active role burden chronic liver disease worldwide close close interaction between patients current scientific recommendations disease disease management fatty frequent chronic liver disease worldwide guide guide summarises the current knowledge healthcare high disease burden important impact on the information
2. 34690775		*Allium victorialis L.* (AVL) is a traditional medicinal plant recorded in the Compendium of Materia Medica (the Ming Dynasty). In general, it is used for hemostasis, analgesia, anti-inflammation, antioxidation, and to especially facilitate hepa ...	addition administration alcoholic liver disease ald allium victorialis l. ameliorate alcoholic steatohepatitis lipid deposition aml cells ampk expressions analgesia antiinflammation antioxidation antiinflammation antioxidation attention attenuated histopathological changes cbl/ changes compendium of materia medica
3. 34667947	New targets for NAFLD.	Non-alcoholic fatty liver disease (NAFLD) is a growing cause of chronic liver disease worldwide. It is characterised by steatosis, liver inflammation, hepatocellular injury and progressive fibrosis. Several animal models (dietary and genetic ani ...	aetiology animal models chronic liver disease worldwide disease effective treatments fatty fibrosis growing hepatocellular inflammation injury liver liver disease worldwide molecular pathways new therapeutic targets
4. 34646233	Post-Translational Modifications of **fxr**; Implications for Cholestasis and Obesity-Related Disorders.	The Farnesoid X receptor (**fxr**) is a nuclear receptor which is activated by bile acids. Bile acids function in solubilization of dietary fats and vitamins in the intestine. In addition, bile acids have been increasingly recognized to act as signaling ...	acetylated acid acid metabolism acids fxr activation by bile acids fxr addition bile acids amino acid metabolism bile bile acids binding heterodimerization cholestasis complex interplay consequences decrease transcription diabetes cholestasis
5. 34639207	Flaxseed Powder Attenuates Non-Alcoholic **steatohepatitis** via Modulation of Gut Microbiota and Bile Acid Metabolism through Gut-Liver Axis.	Non-alcoholic **steatohepatitis** (NASH) is gradually becoming one of the most common and health-endangering diseases; therefore, it is very important to prevent the occurrence of NASH and prevent simple non-	) acid altered bas animal experiment ba beneficial effects bile acid colonic fxr developing diet diseases effects fatty fecal bile acid fla

Section II. Journal articles for query = "fxr steatohepatitis"

#	Journal	Link
1.	BMJ	✓
2.	Cell	✓
3.	JAMA	✓
4.	JBC	✓
5.	The Lancet	✓
6.	Nature	✓
7.	NEJM	✓
8.	Science	✓
9.	The Scientist	✓
10.	Xconomy	✓

Section III. University research centers for query = "fxr steatohepatitis"

#	Source	Link
1.	Baylor College of Medicine	✓
2.	Columbia University in the City of New York	✓
3.	Dana-Farber Cancer Institute	✓
4.	Harvard University	✓
5.	Johns Hopkins University	✓
6.	Massachusetts General Hospital	✓
7.	Massachusetts Institute of Technology	✓
8.	Max Planck Society	✓
9.	Mayo Clinic	✓
10.	Memorial Sloan Kettering Cancer Center	✓
11.	National Institutes of Health	✓
12.	Stanford University	✓
13.	University of California, San Diego	✓
14.	University of California, San Francisco	✓
15.	University of Cambridge	✓
16.	University of Oxford	✓
17.	University of Pennsylvania	✓
18.	University of Toronto	✓
19.	Vanderbilt University Medical Center	✓
20.	Yale University	✓

Products and Services:: Atlantis AI360 Beacon (Interactive Browser for Biopharma; Query: "STAT3 in Autoimmunity")

Clickable links to latest research articles

Mapping of potential protein – protein interactions and signaling cascades

Each identified protein is linked to NCBI databases for easy lookup

Atlantis AI360 highlights key terms for easy reading

Atlantis AI360 will serve contextual ads from life sciences companies relevant to search terms

Welcome to LiteHaus Beacon TRx360 1.o - The Complete Translational Science Platform
By Harshawardhan Bal, PhD | Copyright @ 2022

Section I: Results for search: "stat3 and autoimmunity" | 1000 days | 20 articles

#	PMID (Year), Title & Authors	Abstract	Proximity analysis
1.	35784351 (2022): Long Intergenic Noncoding RNA MIAT as a Regulator of Human Th17 Cell Differentiation. Khan, Khan, Kalim, Khan, Junttila, Paulin, Kong, Rasool, Elo, Lahesmaa	T helper 17 (**th17**) cells protect against fungal and bacterial infections and are implicated in autoimmunity. Several long intergenic noncoding RNAs (**lincrna**) are induced during **th17** differentiation, however, their contribution to **th17** differentiation is poorly understood. We aimed to characterize the function of the **lincrna myocardial infarction** Associated **transcript** (**miat**) during early human **th17** cell differentiation. We found **miat** to be upregulated early after induction of human **th17** cell differentiation along with an increase in the chromatin accessibility at the gene locus. **stat3**, a key regulator of **th17** differentiation, directly bound to the **miat** promoter and induced its expression during the early stages of **th17** cell differentiation. **miat** resides in the nucleus and regulates the expression of several key **th17** genes, including **il17a**, **il17f**, **ccr6** and **cxcl13**, possibly by altering the chromatin accessibility of key loci, including **il17a** locus. Further, **miat** regulates the expression of protein kinase C alpha (**pkcα**), an upstream regulator of **il17a**. A reanalysis of published single-cell RNA-seq data showed that **miat** was expressed in T cells from the synovium of **ra** patients. Our results demonstrate that **miat** contributes to human **th17** differentiation by upregulating several genes implicated in **th17** differentiation. High **miat** expression in T cells of **ra** patient synovia suggests a possible role of **miat** in **th17** mediated autoimmune pathologies.	|th17 |th17 <> th17 <> lincrna |myocardial <> infarction <> miat <> th17 <> lincrna <> transcript |miat <> th17 |stat3 <> th17 <> miat <> th17 |miat <> th17 <> il17a <> il17f <> ccr6 <> cxcl13 <> il17a |miat <> pkcα <> il17a <> α), |miat <> ra |miat <> th17 <> th17 |miat <> ra <> miat <> th17
2.	35750105 (2022): STAT3-confusion-of-function: beyond the loss and gain dualism. Lodi, Faletti, Maccari, Consonni, Groß, Pagnini, Ricci, Heeg, Simonini, Azzari, Ehl	BACKGROUND" NlmCategory="BACKGROUND: Germline mutations of signal transducer and activator of transcription 3 (**stat3**) are responsible for two distinct human diseases: autosomal-dominant hyper-immunoglobulin E syndrome (**ad-hies**) caused by **stat3** loss-of-function (**stat3**-LOF) mutations and **stat3** gain-of-function (**stat3-gof**) disease. So far, these entities have been regarded as antithetic, with **ad-hies** mainly associated with characteristic infections and a connective tissue phenotype and **stat3-gof** characterized by lymphoproliferation and poly-autoimmunity. The **r335w** substitution in the DNA binding domain of **stat3** was initially described in 2 patients with typical **ad-hies**, but paradoxically, recent functional analysis demonstrated a **gof** effect of this variant. OBJECTIVE" NlmCategory="OBJECTIVE: We describe a patient with **sjögren** syndrome and features of **ad-hies** with this mutation and further characterize its molecular consequences. METHODS" NlmCategory=" Methods: We provide a clinical and immunological description of the patient. We studied **stat** phosphorylation in primary patient cells and used **a4** cells transfected with the patient allele to study phosphorylation kinetics, transcriptional activity and target-gene induction. RESULTS" NlmCategory=" Results: The hybrid clinical features of the patient were associated with normal **th17** cells. We observed enhanced and prolonged **stat3** phosphorylation, an increased **stat3** driven luciferase reporter activity upon interleukin-6 stimulation, but reduced **il-6** induced **socs3** production. CONCLUSION: The germline **r335w**-**stat3** variant displays a mixed behavior in vitro that mainly shows gain-of-function, but also loss-of-function features. This is matched by an ambiguous clinical and immunological phenotype which dismantles the classical antithetic dualism of gain- versus loss-of-function. Germline **stat3** mutation related-disease represents a pathological spectrum with the p.**r335w** associated phenotype locating between the two recognized clinical disease patterns.	|ad-hies <> stat3 <> stat3 <> stat3-lof <> stat3 <> stat3-gof |ad-hies |r335w <> ad-hies <> stat3 <> gof |sjögren <> ad-hies | |stat <> a4 |th17 |socs3 <> stat3 <> stat3 <> il-6 |r335w-stat3 | |stat3 <> p.r335w
3.	35720357 (2022): CD5 Controls Gut Immunity by Shaping the Cytokine Profile of Intestinal T Cells. Schuster, Kiaf, Hatzihristidis, Ruckdeschel, Nieves-Bonilla, Ishikawa, Zhao, Zheng, Love, Kissler	**cd5** is constitutively expressed on all T cells and is a negative regulator of lymphocyte function. However, the full extent of **cd5** function in immunity remains unclear. **cd5** deficiency impacts thymic selection and extra-thymic regulatory T cell generation, yet **cd5** knockout was reported to cause no immune pathology. Here we show that **cd5** is a key modulator of gut immunity. We generated mice with inducible **cd5** knockdown (**kd**) in the autoimmune-prone nonobese diabetic (**nod**) background. **cd5** deficiency caused T cell-dependent wasting disease driven by chronic gut immune dysregulation. **cd5** inhibition also exacerbated acute experimental colitis. Mechanistically, loss of **cd5** increased phospho-**stat3** levels, leading to elevated **il-17a** secretion. Our data reveal a new facet of **cd5** function in shaping the T cell cytokine profile.	|cd5 |cd5 |cd5 <> cd5 |cd5 |cd5 <> kd <> nod |cd5 |cd5 |cd5 <> il-17a |cd5
4.	35677041 (2022): A Novel STAT3 Gain-of-Function Mutation in Fatal Infancy-Onset Interstitial Lung Disease. Deng, Li, Li, Mao, Ke, Liang, Lei, Lau, Mao	Signal transducer and activator of transcription 3 (**stat3**) gain-of-function (**gof**) mutations cause early-onset immune dysregulation syndrome, characterized by multi-organ autoimmunity and lymphoproliferation. Of them, interstitial lung disease (**ild**) usually develops after the involvement of other organs, and the onset time is childhood and beyond rather than infancy. Here, we reported a patient who presented with fatal infancy-onset **ild**, finally succumbing to death. Next-generation sequencing identified a novel heterozygous mutation in **stat3** (**c.989c>g**, **p.p330r**). Functional experiments revealed it was a gain-of-function mutation. Upon interleukin 6	|stat3 <> gof |ild |ild |stat3 <> c.989c>g <> p.p330r | |stat3

STAT3

Was this helpful?

STAT3 – signal transducer and activator of transcription 3

Homo sapiens (human)

Also known as: ADMIO, ADMIO1, APRF, HIES

Gene ID: 6774

RefSeq transcripts (21) RefSeq proteins (21) RefSeqGene (1) PubMed (3,360)

Orthologs | Genome Data Viewer | BLAST | Download

Atlantis AI360 generates protein – protein interaction maps and provides insights into potential new directions for research

Atlantis AI360 Translational 360 (Query: "Jak3 signaling")

Clickable links to latest research articles

Mapping of potential protein – protein interactions and signaling cascades

Each identified protein is linked to NCBI databases for easy lookup

Atlantis AI360 highlights key terms for easy reading

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Section I: Results for search: "jak3 and signaling" | 3000 days | 20 articles

#	PMID (Year), Title & Authors	Abstract	Proximity analysis
1.	35993473 (2022): The mRNA Expression of PTEN, LEF1, JAK3, LC3 and p62/SQSTM1 Genes in Patients with Chronic Myeloid Leukemia. Lak, Tamaddon, Ramzi, Ranjbaran, Abedi, Sharifzadeh	INTRODUCTION, BACKGROUND: Chronic myeloid leukemia (**cml**) is a progressive myeloproliferative disorder that results from the formation of a chimeric **bcr-abl** gene. The proteins derived from this gene can affect on some genes from various signaling pathways such as **pi3k/akt/wnt/catenin/jak/stat** involved in proliferation, differentiation, cell death as well as genes related to autophagy. For **cml** patients, **imatinib** is as the first-line treatment with durable and proper responses in Iranian children and adults **cml** patients. Hence, we aimed to evaluate the mRNA expression of some selected key genes from those pathways in patients with **cml** before and under treatment. METHODS, Methods: In the case-control study, the mRNA expression of **pten**, **lef1**, **jak3**, **lc3** and **p62** genes were measured in 51 **cml** patients (6 patients before treatment and 45 patients under treatment with **imatinib** mesylate) and 40 healthy controls using the Real-time PCR method. RESULTS, Results: The mRNA expression of **pten** and **p62** were significantly higher in newly diagnosed patients than controls (**p<0.0001**, and **p=0.0183**, respectively), while, the expression of **lc3** gene was significantly lower in the untreated newly diagnosed group than control subjects (**p=0.0191**). Expression level of **pten**, **lef1**, **jak3** and **p62** genes were significantly decreased in patients under treatment than the group before treatment (**p=0.0172**, P= 0.0002, **p=**0.0047 and **p=**0.0038, respectively). A positive correlation was seen between the gene expression of **p62** and **bcr-abl** in the patients under treatment (r 0529, **p=**0.016). CONCLUSION, CONCLUSIONS. Our findings showed that the changes in expression of these genes were related to the patient's treatment. Due to the key role of these genes in proliferation, differentiation and tumor suppression, it is proposed that perhaps these genes can be helpful for follow up of treatment in **cml** patients.	|cml <> bcr-abl |pi3k/akt/wnt/catenin/jak/stat |cml <> imatinib <> cml |cml |pten <> lef1 <> jak3 <> lc3 <> cml |pten <> p62 <> lc3 |pten <> lef1 <> jak3 <> p62 |p62 <> bcr-abl | | |cml
2.	35984890 (2022): A highly selective JAK3 inhibitor is developed for treating rheumatoid arthritis by suppressing γc cytokine-related JAK-STAT signal. Chen, Yin, Shi, Zhou, Shao, Wei, Wu, Zhang, Sun, Zhang	**janus** kinases (**jaks**) play a critical role in immune responses by relaying signals from more than 50 cytokines, making them attractive therapeutic targets for autoimmune diseases. Although approved **jak** inhibitors have demonstrated clinical efficacy, they target a broad spectrum of cytokines, which results in side effects. Therefore, next-generation inhibitors maintain efficacy, while sparing adverse events need to be developed. Among members of the **jak** family, **jak3** only regulates a narrow spectrum of γc cytokines and becomes a potentially ideal target. Here, a highly **jak3**-selective inhibitor **z583** is developed, which showed a potent inhibition of Jak3 with an IC50 of 0.1 nM and exhibited a 4500-fold selectivity for **jak3** than other **jak** subtypes. Furthermore, **z583** completely inhibited the γc cytokine signaling and sufficiently blocked the development of inflammatory response in **ra** model, while sparing hematopoiesis. Collectively, the highly selective **jak3** inhibitor **z583** is a promising candidate with significant therapeutic potential for autoimmune diseases.	|janus <> jaks |jak | |jak <> jak3 <> γc |z583 <> jak3 <> jak3 <> jak |z583 <> ra <> γc |jak3 <> z583
3.	35870357 (2022): Eugenol protects chondrocytes and articular cartilage by downregulating the JAK/STAT4 signaling pathway. Wu, Wang, Yan, Wu	**osteoarthritis** (OA) is a chronic degenerative bone and joint disease common in middle-aged and elderly people. Currently, there is no satisfactory pharmacological treatment. Eugenol is a phenolic compound that has been shown to exert biological anti-inflammatory, antioxidant, and antiapoptotic effects in multiple systems and organs of the human body. However, its therapeutic effect on OA is unclear. This study examined the effect of eugenol on OA using an anterior cruciate ligament transection (**aclt**) model in mice and its related signaling pathways in interleukin-1β (**il-1β**)-stimulated human chondrocytes. A certain concentration of eugenol inhibited the decrease in cell viability induced by **il-1β** or carbonyl cyanide 3-chlorophenylhydrazone (**cccp**). In vitro, eugenol effectively inhibited **cccp**-induced chondrocyte apoptosis and mitochondrial membrane potential changes and inhibited the expressions of **adamts4** and **mmp13** upregulated by **il-1β**. In vivo, **aclt** induced destruction of the articular cartilage and subchondral bone of the mouse tibial plateau, while eugenol effectively protected the cartilage and subchondral bone from such damage. At the same time, eugenol reduced the **aclt**-induced upregulation of **adamts4** and **mmp13** and the downregulation of type II collagen (**colii**) and aggrecan in the mouse knee cartilage. Eugenol also inhibited the increased expression of cartilage metabolism signaling molecules such as **c-telopeptides** of **colii** (**ctx-ii**) in **aclt**-induced mouse serum. Consistent with the specific changes in the messenger RNA chip, eugenol inhibited the phosphorylation of **jak3** and **stat4** induced by **il-1β**. Together, these results suggest eugenol as an effective new drug for the prevention and treatment of OA.	|osteoarthritis | | | |aclt <> -stim examined th cruciate ligai related signa |cccp <> il-1 inhibited the |adamts4 <> |aclt |adamts4 <> |colii <> ctx- |jak3 <> stat4 <> il-1β |
4.	35732501 (2022): Low-Dose JAK3 Inhibition Improves Antitumor T-Cell Immunity and Immunotherapy Efficacy. Dammeijer, van Gulijk, Klaase, van Nimwegen, Bouzid, Hoogenboom, Joosse, Hendriks, van Hall, Aerts	Terminal **t-cell** exhaustion poses a significant barrier to effective anticancer immunotherapy efficacy, with current drugs aimed at reversing exhaustion being limited. Recent investigations into the molecular drivers of **t-cell** exhaustion have led to the identification of chronic **il2** receptor (**il2r**)-STAT5 pathway signaling in mediating **t-cell** exhaustion. We targeted the key downstream **il2r**-intermediate **jak** 3 using a clinically relevant highly specific **jak3**-inhibitor (**jak3**i; PF-06651600) that potently inhibited STAT5-phosphorylation in vitro. Whereas pulsed high-dose **jak3**i administration inhibited antitumor **t-cell** effector function, low-dose	|t-cell |il2 <> il2r <> -stat5 <> t-cell <> t-cell |jak <> jak3i <> il2r-intermediate <> jak3-inhibitor |jak3i <> jak3i <> t-cell <> t-cell |jak3i

JAK3

GENE — Was this help

JAK3 – Janus kinase 3

Homo sapiens (human)

Also known as: JAK-3, JAK3_HUMAN, JAKL, L-JAK, LJAK

Gene ID: 3718

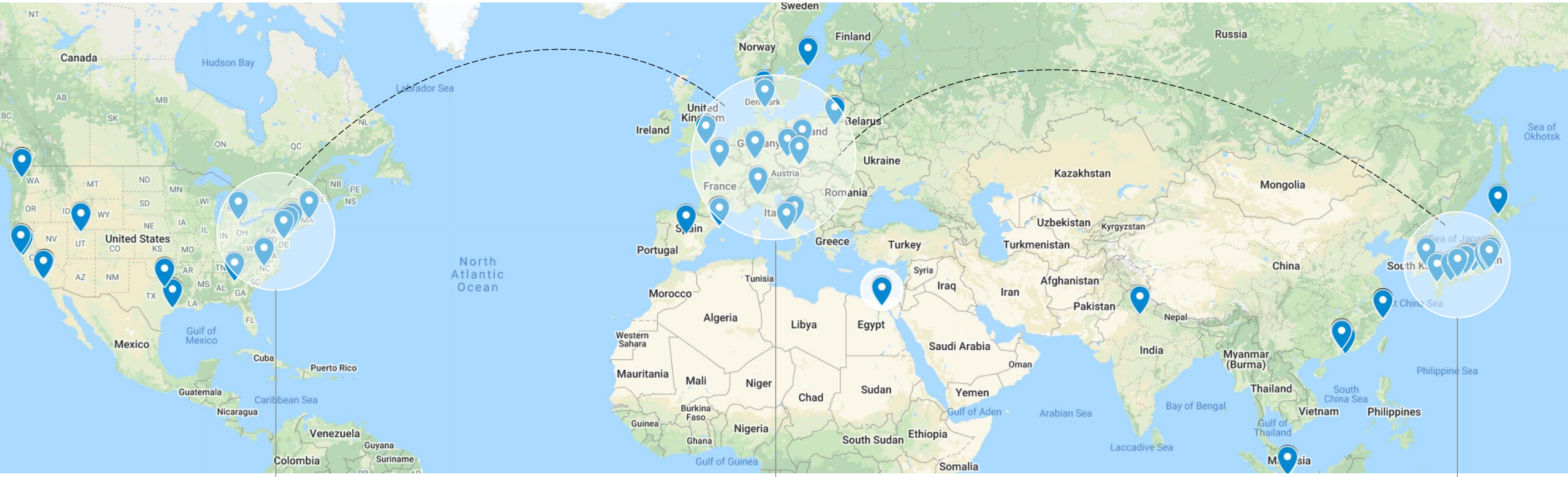
RefSeq transcripts (3) RefSeq proteins (3) RefSeqGene (1) PubMed (254)

Orthologs | Genome Data Viewer | BLAST | Download

Atlantis AI360 generates protein – protein interaction maps and provides insights on novel biomarkers

Products and Services:: Atlantis AI360 Geo (Mapping of sites for KOL engagement, R&D partnerships & patient recruitment)

Geolocation map of academic and industry organizations conducting research on role of fibroblast growth factor receptor (fgfr) in cancer



Opportunities for onboarding KOLs

Potential patient recruitment sites

Opportunities for R&D collaboration

Atlantis AI360 MarketPlaces facilitate stakeholders to knowledge assets from across a global ecosystem of biopharmaceutical R&D

Products and Services:: Atlantis AI360 MarketPlaces (Deep mining and extraction of Knowledge Assets)

Sample deep NLPac* led mapping of academic and industry research on role of fibroblast growth factor receptor (fgfr) in cancer

Targetable Pathways in Advanced Bladder Cancer: FGFR Signaling. Cancers. (2021) 13; (PMID: 34638374). ***Xiao, Jin-Fen et al.,*** *Div. of Medical Oncology; Dept of Surgery (Urology), Division of Medical Oncology, Cedars-Sinai Medical Center, Los Angeles, CA 90048; Department of Surgery (Urology), Cedars-Sinai Medical Center, Los Angeles, CA 90048; Cedars-Sinai Samuel Oschin Comprehensive Cancer Institute, Los Angeles, CA 90048*

Atlantis AI360 NLP generated concepts

Atlantis AI360 NLPac tags:

Research focus: advanced bladder cancer, endothelial growth factor receptor, epidermal growth factor receptor, fibroblast growth factor receptor, fgf/fgfr, pik /akt/mtor, angiopoietin receptors, dag/pkc, igfr, insulin-like growth factor receptor, jak kinases, jak/stat, na+ v channel, ngf, pdgfr, tropomyosin receptor kinases, vegfr

Concepts: endocrine fgfs, intracellular fgfs, activated fgfrs phosphorylate frs, activates pik/akt, activating missense mutations in fgfr, ang activates pik/akt, dysregulation in advanced bladder cancer, fgfrs phosphorylate frs, jak/stat activation, phosphorylate jak kinases, phosphorylate plcγ, high affinity of α-klotho, hormone-like fgfs having low affinity

Combined FGFR and Akt pathway inhibition abrogates growth of FGFR1 overexpressing EGFR-TKI-resistant NSCLC cells. NPJ precision oncology. (2021) 5: (65); (34267282). Terp, MG; Jacobsen, K, et al. *Department of Cancer and Inflammation Research, Institute of Molecular Medicine, University of Southern Denmark, Odense C, Denmark; Laboratory of Oncology, Pangaea Biotech, Quiron Dexeus University Hospital, Barcelona, Spain; Instituto Oncológico Dr. Rosell, University Hospital Sagrat Cor, Barcelona, Spain; Global Clinical Development, Merck Healthcare KGaA, Darmstadt, Germany; Center for Clinical Proteomics, Odense University Hospital, Odense C, Denmark; Thoracic Oncology Unit, Clinical and Translational Oncology Group, Clinica del Country, Bogotá, Colombia; Instituto Oncológico Dr. Rosell, Quiron-Dexeus University Hospital, Barcelona, Spain; Catalan Institute of Oncology, Hospital Germans Trias i Pujol, Badalona, Spain; Germans Trias i Pujol, Health Sciences Institute and Hospital, Badalona, Spain; Department of Cancer and Inflammation Research, Institute of Molecular Medicine, University of Southern Denmark, Odense, Denmark*

Mapping of geolocations to produce global exchange clusters

Atlantis AI360 NLPac tags:

Research focus: clinical egfr-mutant nsclc tumors

Concepts: treatment with first-line egfr-tkis, anti-proliferative effect of fgfri, relative fgfr mrna expression, fgfr mrna expression, egfr-tki in the gefitinib-resistant pc-gr, gefitinib in egfr-tki-resistant cell lines, gefitinib-resistant

Reagents: egfr-tki-resistant cell lines, egfr-tki-resistant nsclc cell lines, erk inhibitor, erlotinib, akt inhibitor gsk, fgfr inhibitor, osimertinib in the osimertinib-resistant pc-gr, azd4, pik-mtor inhibitor gsk

Techniques: non-parametric kruskal wallis test, dunn's multiple comparison, kaplan-meier curves, apoptosis assay of fgfri, cell titer blue of egfr-tki, fgfr dosage viability assay, brdu incorporation assays

Atlantis AI360 Knowledge Assets

**NLPac algorithm conducts text mining on data from any repository to generate a wide array of domain specific business and knowledge assets such as reagents (e.g., antibodies, enzymes, chemicals, …), cell lines, disease models, technical protocols, know-how, experimental therapies, …*

Delivery/Business Model:: Atlantis AI360 Search Engine, Business Incubator and MarketPlaces

Atlantis AI360 Search Engine

1. Users will search Atlantis AI360 for all topics related to life, biomedical and health sciences
2. Atlantis AI360 will conduct deep mining of research data and deliver automated content, as well as scientific, clinical, medical and business insights
3. Atlantis AI360 will provide structured workflows, dynamic and easy to use point and click navigation and access to a wide range of data repositories
4. Atlantis AI360 will serve context specific digital ads based on user query and search results (Google model)
5. Atlantis AI360 will generate revenues from digital ads from businesses that promote their products and services on Atlantis StoreFronts

Atlantis AI360 Incubator

1. Atlantis AI360 is a business incubator for start-ups and growth phase companies seeking to license their technologies, set up R&D collaborations, co-development deals with pharma and/or to raise capital through professional investors
2. Atlantis AI360 will charge an upfront listing fee and 5-10% success fee and warrants to purchase stock on every fund raise or transaction (as applicable)

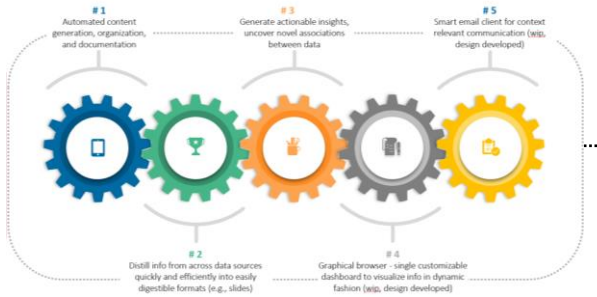
Atlantis AI360 MarketPlaces

1. Atlantis AI360 will serve as a MarketPlace for users who have a service, product or specialized techniques to sell (e.g., reagents, cell lines, disease models, technical protocols, experimental therapies, software, …) – not an exhaustive list
2. Users will set up own StoreFront to sell their services and/or products. Atlantis AI360 Search will highlight businesses on MarketPlaces to the life sciences community in a contextual manner
3. Atlantis AI360 will take a 4% fee for every transaction made via the portal

Atlantis AI360 brings together multiple revenue streams for the enterprise value chain from intelligent search and business incubation to commercial marketplaces

Delivery/Business Model:: Commercial MarketPlaces (User Storefronts)

Atlantis AI360 Platform



Atlantis AI360 Search Engine (Genie)

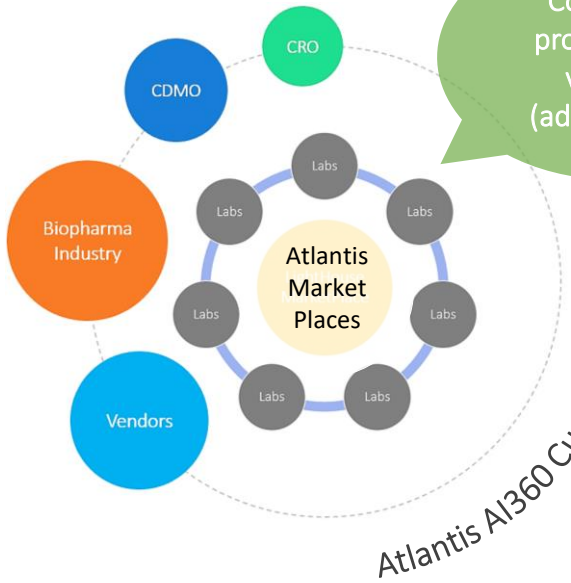
Atlantis AI360 Scientific & Business Knowledge Assets (Sampling)

Biomed expertise (KOLs, PIs)	Scientific, clinical & medical insights	Best Practices, Protocols, Techniques
Reagents, Clones, Antibodies, Cell lines	Real World Data	Lab Geolocation Mapping
Experimental Therapies	Grants, Licensing, Alliances & Partnering	Patient Recruitment (clinical sites)

Deep mapping of knowledge assets across domain

Atlantis AI360 MarketPlaces

Contextual promos from vendors (ad revenues)



Business CRM System of and for Life Scientists

Atlantis AI360 MarketPlaces
(Users can set up own Storefronts)

Atlantis AI360 MarketPlaces facilitate transactions of assets and content: Reagents, protocols, data, know-how, best practices, experimental therapies and others (e.g., KOLs, PIs, clinical trials sites, patient recruitment, alliances and partnerships, …)

Life Sciences Labs in the United States:: Monetizable value for tools and techniques is $1B-$5B

- Number of Institutions & Labs
  - Academic institutions: NSF surveys ~900 U.S. universities conducting R&D
  - Federal labs: ~300 federally-run labs
  - Nonprofit/private research institutes: Scripps alone has 170 labs, NIH Intramural Program ~1,200 PIs across units
- Total estimate
  - Universities: 900 institutions × ~50 labs = 45,000 labs
  - Federal: 300 labs
  - Nonprofit: ~200 institutes × ~50 labs = 10,000 labs
- → ~55,000 life science lab units in U.S.

- Researchers & PIs
  - NIH extramural program funds ~325,000 researchers across ~3,000 institutions
  - NIH intramural: ~1,200 PIs + 4,000 postdocs
  - Estimate total life sciences contributors: Graduate students/postdocs/staff: ~1 million
  - Principal Investigators (faculty & equivalent): ~150,000
- Patentable Assets
  - If each lab yields 2–5 unique knowledge assets (e.g., clones, antibodies, animal models, experimental therapeutics, techniques, technologies, etc.), total assets = 110,000–275,000
  - If even 10–20% have monetizable IP, that's 11,000–55,000 active storefront assets

- Monetary & Impact Value
  - Published data: Scripps holds ~1,100 patents and has spun off 50 companies
  - Typical antibody or cell-line asset can be valued at $5–50 K each, rare model, experimental therapeutic (small molecule, biologic, peptide, etc.) potentially higher
- Marketplace value pool
  - $1billion to $5 billion in transactable life science IP annually; significant transformational impact on drug discovery, diagnostics, and innovation in human health
  - Does not include human expertise based assets (see next slide)

Ref: orcid.org, ncses.nsf.gov, ncbi.nlm.nih.gov, pls.llnl.gov; en.wikipedia.org

Examples of monetizable tools and techniques (not exhaustive)

Entity Type	Examples
Reagents	Antibodies, chemicals, kits
Disease models	Mouse models, zebrafish lines
Tools & Assays	Imaging assays, ELISA, qPCR panels
Constructs	Plasmids, CRISPR guides, expression systems
Disease Models	AD models, cancer subtypes
Patient Pools / Expertise	AD patient cohort, MDs running studies
Techniques	Baculovirus expression, confocal microscopy
…	…

Life Sciences Labs in the United States:: Human Expertise-Based Assets value for marketplaces is >$10B

- Category 1: Scientific Know-How
  - "How to run a Student's T-test or Kruskal-Wallis test in clinical studies"
  - "How to optimize baculovirus protein expression"
  - "How to extract DNA from FFPE samples"
  - "How to design a CRISPR screen"
- Every graduate student and postdoc acquires dozens of these niche competencies over years of research. These are usually: **not formally taught and** not easily discoverable
- Estimated pool in U.S.:
  - 1.2–1.5M people (graduate students, postdocs, tech staff, junior faculty)
  - Each with 10–50 unique protocol/process-level skill assets = 15M–50M skill assets

- Category 2: KOL / Clinical Expertise
  - A PI in dermatology offering patient access for clinical trials
  - A physician with real-world experience in rare diseases
  - A surgeon who can advise on feasibility for MedTech studies
- Estimated pool:
  - ~90,000 active physician–scientists in U.S.
  - ~10,000 MD–PhD faculty in academic med centers
  - ~30,000–50,000 potential trial site PIs (NIH ClinicalTrials.gov sponsors list)
- 40,000–60,000 monetizable experts for KOL access, trial partnerships, advisory work

- Category 3: Specialized & Tacit Knowledge -
  - "How to do image segmentation on microscopy data"
  - "How to troubleshoot HPLC drift in new solvents"
  - "How to write an IND application section for CMC"
- These are often undocumented tacit knowledge learned by: Industry scientists, Regulatory consultants, Medical writers, statisticians,and QC/QA leads
- Estimated pool: 150,000+ professionals with 5+ years of domain-specific experience
- ~2–5 tacit, monetizable expertise per individual = 300,000–750,000 high-value consultable skills

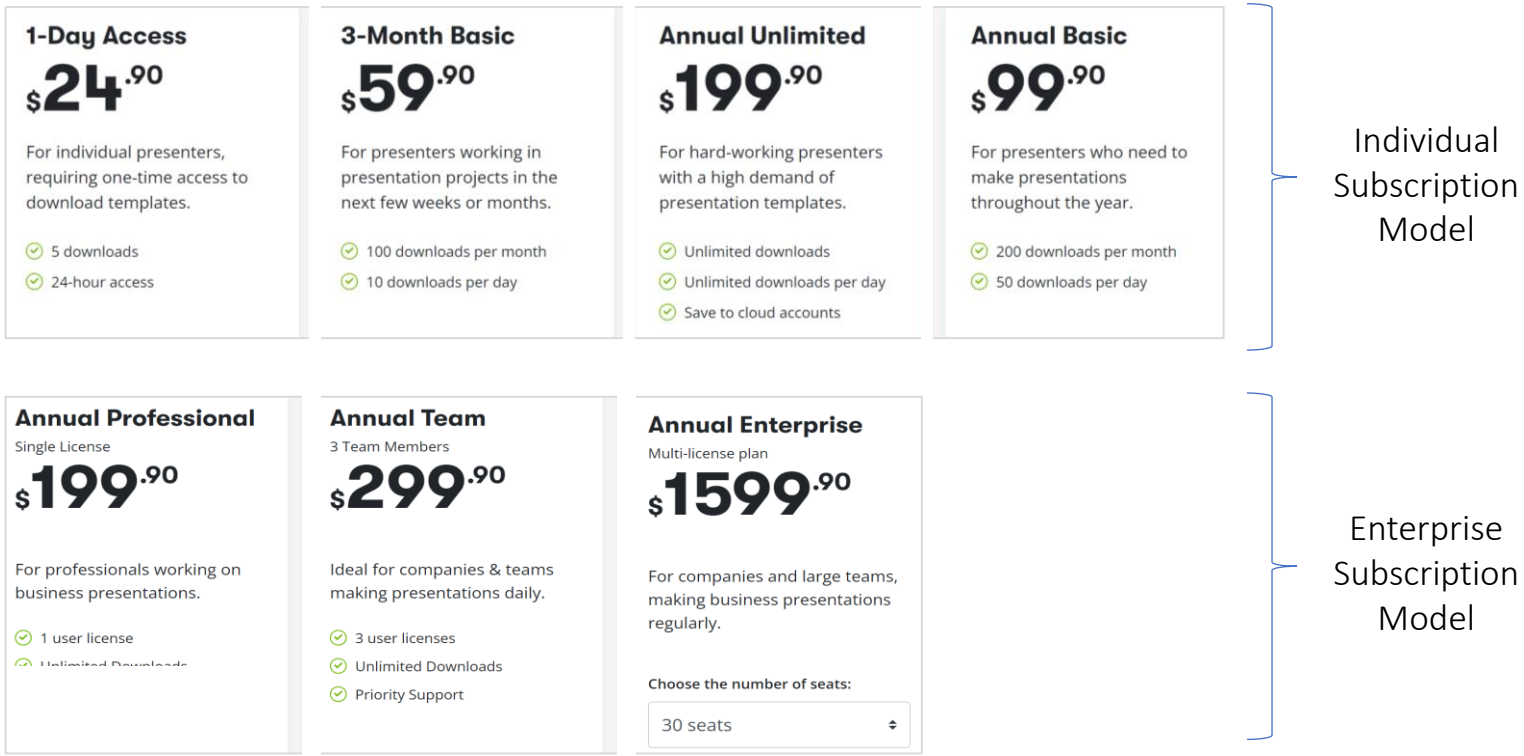
Valuation of Human-Capital Assets

Type of Asset	Est. Quantity (U.S.)	Avg. Value per Access (USD)	Potential Marketplace Value
Protocol-level skills	15M–50M	$25–$250 (per consult/lic.)	$1B–$10B+ annually
KOL & patient access	40K–60K	$500–$10K per engagement	$1B+ annually
Tacit technique & know-how	300K–750K	$250–$2,500	$1B–$5B annually
		Total estimate (USD)	**$3B - $15B**

Delivery/Business Model:: Subscription-Based Content Access

- #1: Ready made content - Users can download content from a library of technical, scientific, clinical, medical, business and competitive information covering comprehensive set of biomolecular targets, disease areas, etc.
- #2: Concierge model - Bespoke content developed as per customer specs "*FXR Agonism in Liver Disease*"

Sample pricing for content



Individual Subscription Model

Enterprise Subscription Model

Representative pricing; actual numbers may be different depending on size/revenue of client organization and services provided

Delivery/Business Model:: Automated Content, Insights & Intel Generation (Enterprise Accounts)

TERNS PHARMACEUTICALS

FXR Agonism in Steatohepatitis

Terns Pharma (NASDAQ: TERN) is a clinical-stage company developing small-molecule candidates for treatment of non-alcoholic steatohepatitis (NASH) and other chronic liver diseases

For TERN-101, a nonsteroidal non-bile acid FXR agonist in Phase 2a, preliminary analysis on content prepared automatically with Atlantis AI360 generates following insights -

1. *Competitive landscape (e.g., BMS, Gilead, GSK, Intercept, Metacrine, etc., developing alternate versions or classes of FXR agonists)*
2. *Alternate interventional strategies (e.g., partial agonists, dual agonists, ...)*
3. *Molecular MOA, metabolic/signaling pathways; on and off target effects*
4. *SAR data on chemical structures and pharmaceutical/pharmacological activity*
5. *Comprehensive review of scientific and clinical literature on NASH*
6. *Identification of PIs, KOLs and patient recruitment sites (see geo location map of research labs)*
7. *Industry co-development alliances and partnering opportunities*

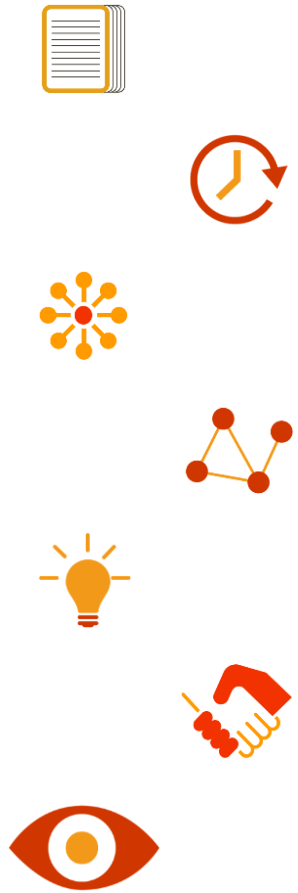
HORIZON

Uricase in Gout Therapy

Horizon Therapeutics plc (NASDAQ: HZNP) is a biopharmaceutical company researching, developing, and commercializing medicines for rare and rheumatic diseases

For KRYSTEXXA®, a recombinant Uricase enzyme (pegloticase) used in combination with immunomodulation for gout, preliminary analysis on content prepared automatically with Atlantis AI360 generates following insights -

1. *Competitive landscape (e.g., Allena Pharma, AZ, Sanofi, etc., developing alternate versions of uricase or other molecular entities)*
2. *New clinical / therapeutic applications (e.g., chronic kidney disease, tumor lysis syndrome, Lesch-Nyhan syndrome, hypertension, etc.)*
3. *Real world patient data supporting use in combination with immunomodulation*
4. *Clues on engineering of safer, immunotolerated versions of pegloticase*
5. *Identification of PIs, KOLs and patient recruitment sites (geo location map of research labs)*
6. *Industry co-development alliances and partnering opportunities*



Atlantis AI360 Genie generates content in an evidence-driven manner spanning technical, scientific, clinical, medical and competitive aspects of drug R&D and delivers actionable insights on research directions and development strategy

Atlantis AI360 TRx 360:: Case Study I – Whole genome dysregulation in HTLV-1 induced Adult T-Cell Leukemia

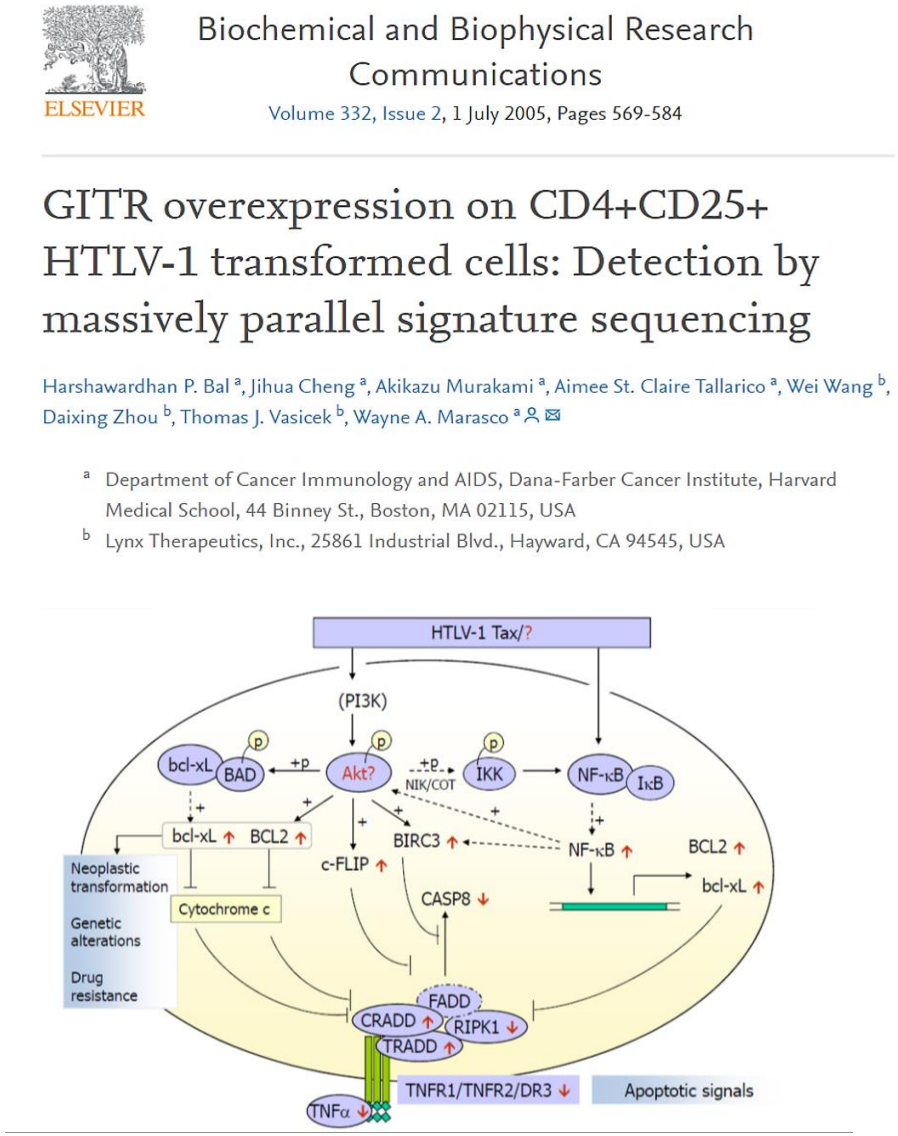
The Massively Parallel Signature Sequencing (MPSS) Platform from Nobel Laureate Sydney Brenner's laboratory was utilized at Dana-Farber Cancer Institute/Harvard Medical School to generate RNA transcripts in cell lines transformed with the HTLV-1 virus.

Deep mining of RNA transcripts in HTLV-infected cells was conducted to understand molecular mechanisms of genome wide dysregulation caused by the virus. The analysis demonstrated an upregulation of GITR (Glucocorticoid-induced TNFR-Related), a protein encoded by the TNFRSF18 gene, a member of the tumor necrosis factor receptor (TNF-R) superfamily. This receptor has increased expression upon T-cell activation and plays a key role in dominant immunological self-tolerance maintained by CD25+/CD4+ regulatory T cells and leading to anergy in HTLV infected cells.

An important conclusion of the paper was *"…overexpression of GITR, an activation marker not previously reported to be upregulated by HTLV-1-infection or in transformed/leukemic cells and that is associated with the suppressor phenotype of CD4+CD25+ regulatory T-cells (Tregs), was also observed."*

Atlantis AI360 Translational 360 conducts deep NLP-based analysis of molecular and clinical pathology, identifies novel associations between biological entities thereby accelerating evidence driven scientific discovery and drug development R&D

- From whole genome dysregulation analysis on HTLV-1 induced leukemia conducted at Dana-Farber Cancer Institute, Harvard Medical School



ELSEVIER

Biochemical and Biophysical Research Communications

Volume 332, Issue 2, 1 July 2005, Pages 569-584

GITR overexpression on CD4+CD25+ HTLV-1 transformed cells: Detection by massively parallel signature sequencing

Harshawardhan P. Bal [a], Jihua Cheng [a], Akikazu Murakami [a], Aimee St. Claire Tallarico [a], Wei Wang [b], Daixing Zhou [b], Thomas J. Vasicek [b], Wayne A. Marasco [a]

[a] Department of Cancer Immunology and AIDS, Dana-Farber Cancer Institute, Harvard Medical School, 44 Binney St., Boston, MA 02115, USA

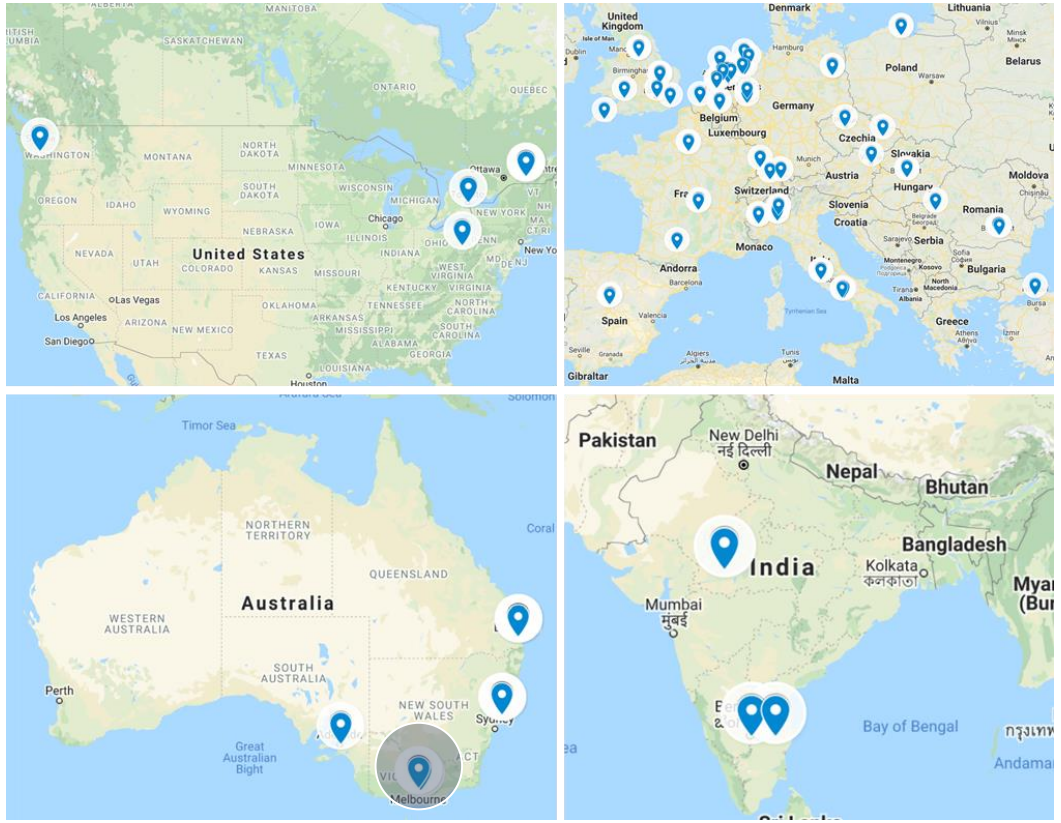
[b] Lynx Therapeutics, Inc., 25861 Industrial Blvd., Hayward, CA 94545, USA

Atlantis AI360 TRx 360:: Case Study II – Clinical DD for Licensing a Phase III Rare Disease Asset

Use case I: Atlantis AI360 for a strategic investor in an investment DD scenario - A pharma co was evaluating an investigational small molecule treatment for potential investment via an equity stake or outright purchase of the asset. The therapy is in Phase III clinical trials for a pediatric neurodegenerative rare disease and the company wants to take expert opinion from a KOL in the disease area as one data point in their technical DD.

A query was conducted with Atlantis AI360 Translational 360 engine generated scientific and clinical content on the disease area in a matter of minutes documenting the latest scientific papers (complete with abstracts, authors, findings, and supporting figures and captions), incl., a deep dive into the disease pathology, clinical evidence, competitors, available treatment alternatives as well as geolocation mapping of labs and sites involved in scientific and clinical research in the disease area.

Based on this analysis, several research clusters across US (e.g., UPenn), Australia (e.g., Monash Univ) and several in Belgium, India, Netherlands and United Kingdom were identified. Atlantis AI360 identified the KOLs by name, address and email ids. Two KOLs (one in US and one in Australia) were contacted and within a span of 12 hrs, the KOL from Monash Univ – Professor of Regenerative Neurosciences - responded and a call was organized within 48 hrs, completing a key aspect of DD.



This real-life use case offers a view into the speed with which Atlantis AI360 performs comprehensive reviews of the stated subject of interest and develops actionable intel with immense acceleration of evidence-driven analysis and decision making

Atlantis AI360 TRx 360:: Case Study III – Clinical guidelines and Therapy Gap Analysis

Use case II: Developing clinical guidelines for the treatment of gastrointestinal (GI) cancers. A global medical affairs leader in a top 10 biopharmaceutical companies was seeking clinical practice guidelines that define the current standard of care in therapy of GI cancers. This data was needed to assess the company's competitive positioning in the GI space and assist with the appropriate portfolio development decisions.

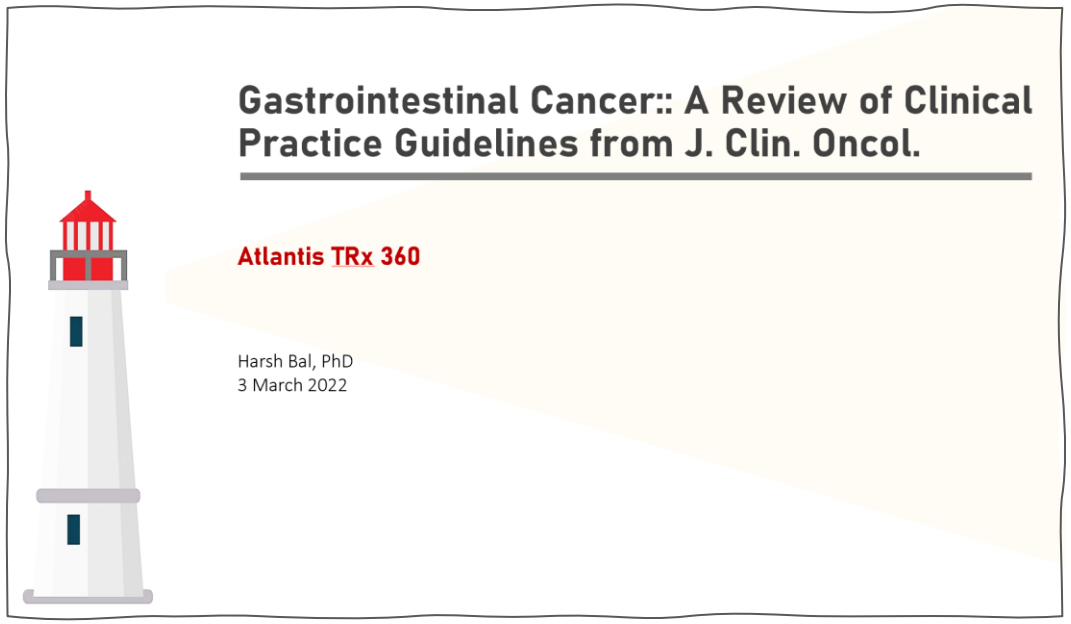
Atlantis AI360 was quickly able to generate a review of clinical practice guidelines from the Journal of Clinical Oncology (JCO), a high-impact, peer-reviewed medical journal of the American Society of Clinical Oncology (ASCO) that publishes clinical oncology research along with editorials, reviews, and research works related to the care of patients with cancer. Further analysis of this data led to key insights and a decision tree - e.g., to address such and other questions as -

1. *What are the First, Second and Third-line treatment options in advanced hepatocellular carcinoma (HCC), Child-Pugh class A liver disease, ECOG Performance Status PS 0-1?*

2. *What are the alternatives for patients if Atezolizumab + Bevacizumab are contraindicated?*

3. *When can doublet therapy with Gemcitabine and Capecitabine or monotherapy with Gemcitabine alone or Fluorouracil plus Folinic Acid alone be offered?*

4. *When should checkpoint inhibitors such as Nivolumab and Ipilimumab be used?*



This real-life use case offers a view into the depth of analysis that Atlantis AI360 can conduct on any area of clinical and pharmaceutical research and offer actionable intel with immense acceleration of evidence-driven analysis and decision making

Atlantis AI360 TRx 360:: Case Study IV – Review of Competitive Landscape on CDK4 Clinical Trials

	NCT ID	Last Change Date	Sponsor	Title
1	NCT04615312	August 20, 2021	Henan Cancer Hospital	A Trail of CDK4/6 Inhibitor and MEK Inhibitor in the Treatment of Metastatic Digestive System Tumors
2	NCT03439735	July 18, 2022	Sidney Kimmel CCC at Johns Hopkins	Determinants of Resistance to Endocrine Therapy and a CDK4/6 Inhibitor for HR+ MBC
3	NCT03425838	April 1, 2022	Borstkanker Onderzoek Groep	Endocrine Therapy Plus CDK4/6 in 1st or 2nd Line for Hormone (SONIA) Receptor Positive Advanced Breast ca (BC)
4	NCT05051956	September 15, 2021	Namik Kemal University	Evaluation of Geriatric Questionnaires to Predict Toxicities of CDK 4/6 Inhibitors in Older BC Patients?
5	NCT05173103	July 27, 2022	University of Milano Bicocca	Retrospective Study of 2nd-line Therapies After CDK4/6i + Hormonal Therapy in HR+/HER2- Advanced BC
6	NCT05141240	December 15, 2021	Novartis	A Real-world Analysis of Concomitant Medication Use Among Metastatic BC Patients Treated With CDK4/6 Inhibitors
7	NCT03227328	April 20, 2020	Istituto Scientifico Romagnolo per lo Studio e la cura dei Tumori	CDK4/6-inhibitor or Chemotherapy, in Combination With ENDOcrine Therapy, for Advanced BC / KENDO
8	NCT04486911	July 30, 2022	Shengjing Hospital	Pyrotinib Maleate, CDK4/6 Inhibitor and Letrozole in Combination for Stage II-III TPBC: a Phase II Trial
9	NCT05153135	December 15, 2021	Novartis	Description of Treatment Patterns and Description and Comparison of Healthcare Resource Utilization and Costs of Women With Metastatic HR+/HER2- BC Treated With CDK4/6 Inhibitors
10	NCT05139082	November 24, 2021	Peking University	Study of CDK4/6 Inhibitor Combined With PD-L1 Mab in the Treatment of PD-1/PD-L1 Resistance and Abnormal Cell Cycle Digestive System Tumors
11	NCT05303129	May 27, 2022	Centre Francois Baclesse	Prognostic Impact of the Neutrophil/Lymphocyte Ratio (NLR) in the Treatment of First-line Metastatic or Locally Advanced BC Treated With CDK4/6 Inhibitor.
12	NCT02187783	July 16, 2019	Novartis	LEE011 for Patients With CDK4/6 Pathway Activated Tumors (SIGNATURE)
13	NCT05295043	March 15, 2022	Tianjin Medical University Cancer Institute and Hospital	A Multicenter Clinical Study Evaluating the Clinical Outcomes of HR+/HER2- Advanced BC With Different HER2 Expression Levels in Combination With a Real-world CDK4/6 Inhibitor Combined With Endocrine Therapy
14	NCT04660435	July 27, 2022	Fondazione Sandro Pitigliani	To Identify Primary Resistance to CDK4/6 Inhibitors in BC
15	NCT02345824	June 5, 2018	University of Virginia	Early-Phase Study to Assess Inhibitor Ribociclib in Patients With Recurrent Glioblastoma or Anaplastic Glioma
16	NCT04318223	March 20, 2020	Consorzio Oncotech	Palbociclib Plus Fulvestrant in Women With Hormone Receptor positive and Human EGFR Type 2 Negative Locally Advanced or Metastatic BC Previously Treated With a CDK4/6 Inhibitor in Combination With Hormonal Therapy
17	NCT04920708	June 3, 2021	Royal Marsden NHS Foundation Trust	Fulvestrant, Ipatasertib and CDK4/6 Inhibition in Metastatic ER+/HER2- BC Patients Without ctDNA Suppression
18	NCT04010357	July 27, 2022	Case CCC	Targeted Therapy With CDK4/6 Inhibitors in Chemo-Refractory, Rb Wild-Type Extensive SCLC
19	NCT03993964	June 20, 2019	Sun Yat-sen University	Study to Evaluate the Efficacy and Safety of CDK4/6 Inhibitor SHR6390 Combined With Pyrotinib in the Treatment of HER2-positive Advanced BC
20	NCT03310879	January 18, 2022	Dana-Farber Cancer Institute	Study of CDK4/6 Inhibitor Abemaciclib in Solid Tumors Harboring Genetic Alterations in Genes Encoding D-type Cyclins or Amplification of CDK4 or CDK6
21	NCT04095390	September 18, 2019	Shandong Cancer Hospital and Institute	A Phase Ⅱ Trial of Pyrotinib Combination With CDK4/6 Inhibitor SHR6390 in Patients Prior Trastuzumab-treated Advanced HER2-Positive BC
22	NCT05181033	January 4, 2022	National University Hospital, Singapore	Lenvatinib+Letrozole Versus Fulvestrant in Metastatic ER+/HER2- BC, Post Progression on AI + CDK4/6 Inhibitor
23	NCT04594005	May 30, 2022	Yonsei University	CDK4/6 Tumor, Abemaciclib, Paclitaxel
24	NCT03110744	December 6, 2021	University Hospital Heidelberg	CDK4/6 Inhibition in Locally Advanced/Metastatic Chordoma
25	NCT04526587	May 6, 2022	Roswell Park Cancer Institute	Biomarkers and Clinical Features of Metastatic BC in Patients Treated With CDK4/6 Inhibitors
26	NCT03195192	June 30, 2020	Side-Out Foundation	Utilizing Multiomic Advanced Diagnostics to Identify CDK 4/6 Inhibitor Response Predictors and a Post-treatment Multiomic Signature for Patients With ER+/HER2- Metastatic BC
27	NCT02732119	April 10, 2021	Novartis	Study of Ribociclib With Everolimus + Exemestane in HR+ HER2- Locally Advanced/Metastatic BC Post Progression on CDK 4/6 Inhibitor.
28	NCT05536128	September 12, 2022	Seoul National University Hospital	Evaluating the Efficacy and Safety of Fulvestrant Plus DNA Damage Repair Inhibitors After a CDK4/6 Inhibitor
29	NCT05276713	March 3, 2022	Beijing 302 Hospital	Outcome of Tucidinostat-Based Therapy in HR+ Metastatic BC Patients Previously Treated With CDK4/6 Inhibitor
30	NCT03050398	May 14, 2020	Novartis	A Companion Sample Collection Protocol to Support the Discovery of BC Aberrations With Treatment of CDK4/6 Therapy/LEE011/Ribociclib

Atlantis AI360 can conduct mapping of clinical trials and offer actionable intel (e.g., guide selection of end-points, biomarkers, trial sites and PIs) with immense acceleration of evidence-driven decision making

Atlantis AI360 TRx 360:: Case Study V – Review of Patent Landscape of CDK4

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By Harshawardhan Bal, PhD | Copyright @ 2022

Patent search for cdk4

#	Patent record
1	**20190092768**: DEGRADATION OF CYCLIN-DEPENDENT KINASE 4/6 (CDK4/6) BY CONJUGATION OF CDK4/6 INHIBITORS WITH E3 LIGASE LIGAND AND METHODS OF USE Publication number: 20190092768 Abstract: The present application provides bifunctional compounds of Formula (I): or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof, which act as protein degradation inducing moieties for cyclin-dependent kinase 4 (CDK4) and/or cyclin-dependent kinase 6 (CDK6). The present application also relates to methods for the targeted degradation of CDK4 and/or CDK6 through the use of the bifunctional compounds that link a ubiquitin ligase-binding moiety to a ligand that is capable of binding to CDK4 and/or CDK6 which can be utilized in the treatment of disorders modulated by CDK4 and/or CDK6. Type: Application Filed: April 21, 2017 Publication date: March 28, 2019 Inventors: Nathanael S. GRAY, Tinghu ZHANG, Calla M. OLSON, Yanke LIANG, Nicholas KWIATKOWSKI
2	**10865204**: Degradation of cyclin-dependent kinase 4/6 (CDK4/6) by conjugation of CDK4/6 inhibitors with E3 ligase ligand and methods of use Patent number: 10865204 Abstract: The present application provides bifunctional compounds of Formula (I): or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof, which act as protein degradation inducing moieties for cyclin-dependent kinase 4 (CDK4) and/or cyclin-dependent kinase 6 (CDK6). The present application also relates to methods for the targeted degradation of CDK4 and/or CDK6 through the use of the bifunctional compounds that link a ubiquitin ligase-binding moiety to a ligand that is capable of binding to CDK4 and/or CDK6 which can be utilized in the treatment of disorders modulated by CDK4 and/or CDK6. Type: Grant Filed: April 21, 2017 Date of Patent: December 15, 2020 **Assignee:** DANA-FARBER CANCER INSTITUTE, INC. Inventors: Nathanael S. Gray, Tinghu Zhang, Calla M. Olson, Yanke Liang, Nicholas Kwiatkowski, Baishan Jiang, Eric Wang
3	**20210340140**: DEGRADATION OF CYCLIN-DEPENDENT KINASE 4/6 (CDK4/6) BY CONJUGATION OF CDK4/6 INHIBITORS WITH E3 LIGASE LIGAND AND METHODS OF USE Publication number: 20210340140 Abstract: The present application provides bifunctional compounds, or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof, which act as protein degradation inducing moieties for cyclin-dependent kinase 4 (CDK4) and/or cyclin-dependent kinase 6 (CDK6). Type: Application Filed: July 23, 2019 Publication date: November 4, 2021 Inventors: NATHANAEL S. GRAY, BAISHAN JIANG, TINGHU ZHANG, ERIC WANG, NICHOLAS KWIATKOWSKI, YANKE LIANG, CALLA M. OLSON
4	**20070275918**: Induction of Cellular Senescence by Cdk4 Disruption for Tumor Suppression and Regression Publication number: 20070275918 Abstract: The invention provides methods of inhibiting growth of tumor cells comprising contacting the cells with a Cdk4 inhibitor. The invention also provides methods of treating patients having, suspected of having, or at a high risk for developing, a cancer, comprising treatment with a Cdk4 inhibitor. The invention also relates to pharmaceutical compositions for treating such patients, wherein the pharmaceutical compositions comprise a Cdk4 inhibitor. The invention further relates to Cdk4 siRNA molecules capable of inhibiting Cdk4 expression or activity. Type: Application Filed: May 12, 2004 Publication date: November 29, 2007 **Applicant:** The Board of Trustees of the University of Illinois Inventors: Hiroaki Kiyokawa, Xianghong Zou
5	**7256256**: CDK4 binding peptide Patent number: 7256256 Abstract: The invention provides a CDK4 binding peptide, and a nucleic acid sequence coding therefore, that is capable of specifically binding cyclin dependent kinase (CDK4) to inhibit CDK4 activity and cell growth. The invention also includes

Atlantis AI360 can conduct competitive analysis and offer actionable intel (e.g., IP rights and patent holders for licensing or collaborative R&D alliances) with immense acceleration of evidence-driven decision making

Atlantis AI360 TRx 360:: Case Study VI - Role of CDK4 in breast cancer

Query: CDK4 signaling (NOT CDK4/6) AND Breast Cancer

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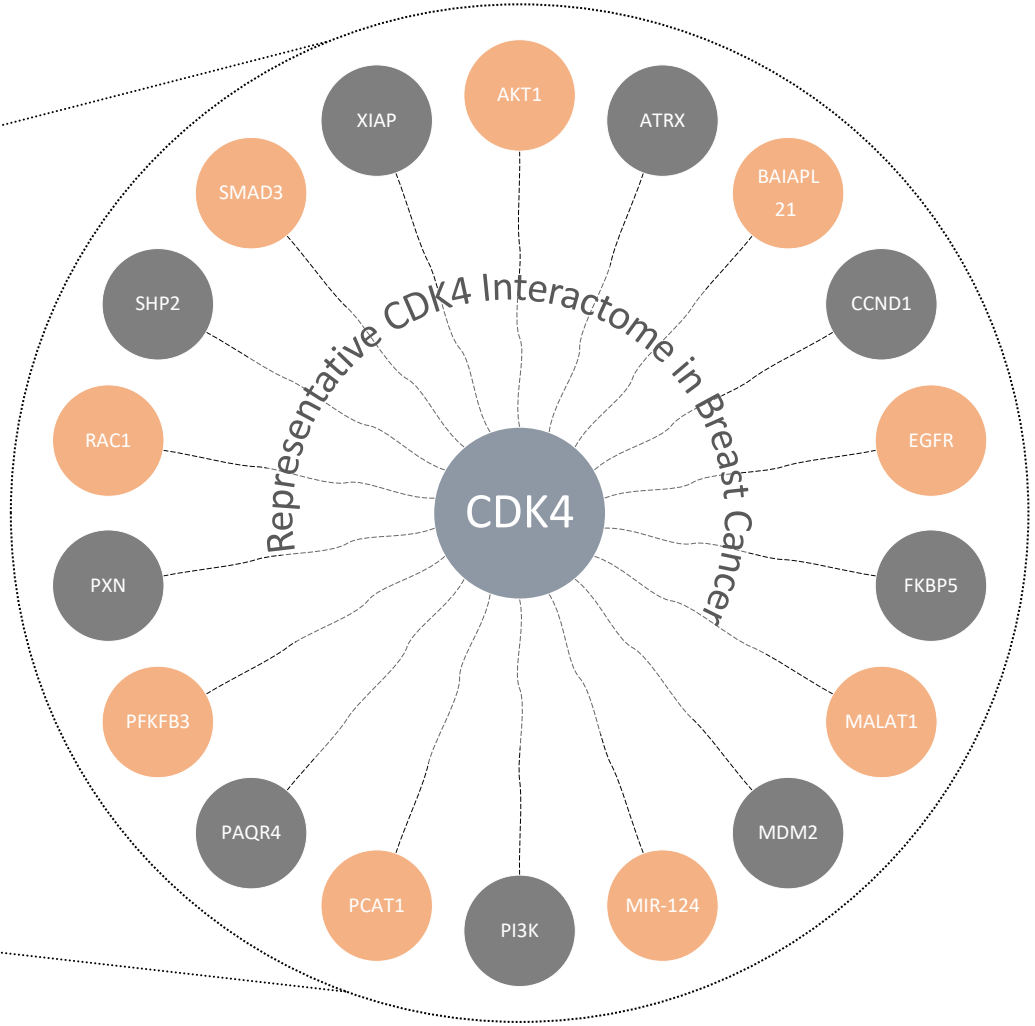
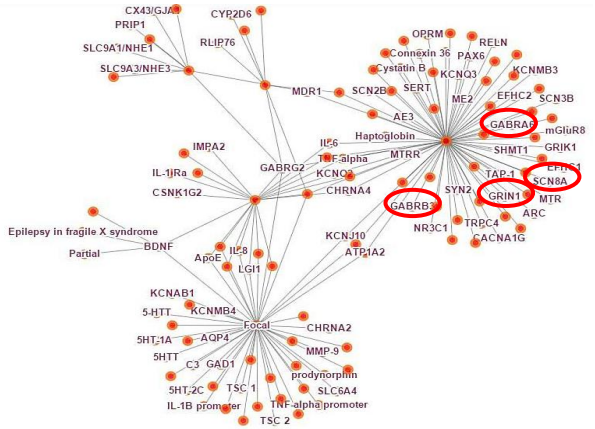
Section I: Results for search: "cdk4 and NOT cdk4/6 and NOT cdk4/cdk6 AND breast+cancer" | 3000 days | 50 articles

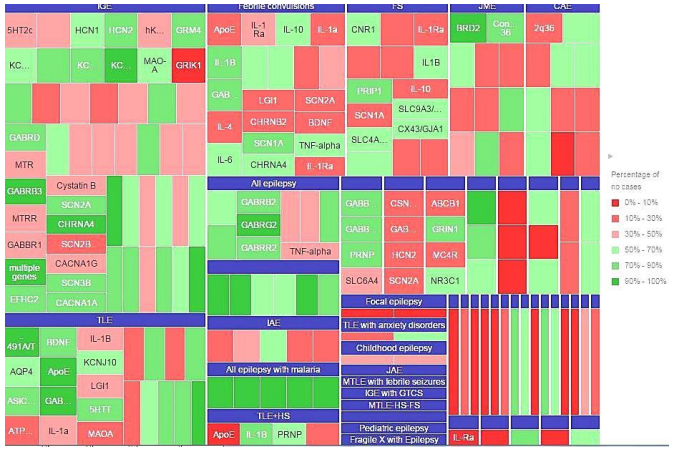
#	PMID (Year), Title & Authors	Abstract	Proximity analysis
1.	35917168 (2022): Targeting CDK4 and 6 in Cancer Therapy: Emerging Preclinical Insights Related to Abemaciclib. Wander, O'Brien, Litchfield, O'Dea, Morato Guimaraes, Slamon, Goel	Pharmacologic inhibitors of cyclin-dependent kinases 4 and 6 (**cdk4** and 6) are approved for the treatment of subsets of patients with hormone receptor positive (**hr+++**) breast cancer (**bc**). In metastatic disease, strategies involving endocrine therapy combined with **cdk4** and 6 inhibitors (**cdk4** and 6i) improve clinical outcomes in **hr+++ bcs**. **cdk4** and 6i prevent retinoblastoma tumor suppressor protein phosphorylation, thereby blocking the transcription of **e2f** target genes, which in turn inhibits both mitogen and estrogen-mediated cell proliferation. In this review, we summarize preclinical data pertaining to the use of **cdk4** and 6i in **bc**, with a particular focus on several of the unique chemical, pharmacologic, and mechanistic properties of **abemaciclib**. As research efforts elucidate the novel mechanisms underlying **abemaciclib** activity, potential new applications are being identified. For example, preclinical studies have demonstrated **abemaciclib** can exert antitumor activity against multiple tumor types and can cross the blood-brain barrier. **abemaciclib** has also demonstrated distinct activity as a monotherapeutic in the treatment of **bc**. Accordingly, we also discuss how a greater understanding of mechanisms related to **cdk4** and 6 blockade highlight **abemaciclib**'s unique in-class properties, and could pave new avenues for enhancing its therapeutic efficacy.	|cdk4 <> hr+ <> bc |cdk4 <> cdk4 <> hr+ <> bcs |cdk4 <> e2f |cdk4 <> bc | | |abemaciclib <> bc |cdk4
2.	35870089 (2022): Expression patterns and therapeutic implications of CDK4 across multiple carcinomas: a molecular docking and MD simulation study. Qayoom, Mehraj, Sofi, Aisha, Almilaibary, Alkhanani, Mir	The **cdks** are known to play a critical role in cell cycle regulation process. Among the different groups of **cdks**, **cdk4** overexpression/hyperactivation is found to be present in many cancers and a specific **cdk4** inhibitor, palbociclib has been recently approved by the FDA against breast cancer. However, the treatment with palbociclib has shown many associated toxicities such as-anemia, thrombocytopenia, neutropenia, and febrile neutropenia and more. Despite the fact being FDA approved for only breast cancer and no other cancers and **cdk4** being overexpressed in multiple cancers. Therefore, we in our study intend to screen two novel **cdk4** inhibitors that show considerably less associated toxicities and greater therapeutic implications than palbociclib. We screened the compounds using **lipinski**'s rule, **admet** analysis and further analyzed the selected compounds using a virtual screening method called molecular docking and validated our results by **md** simulation. We studied the expression patterns and prognostic significance of **cdk4** across multiple carcinomas by using some database like UALCAN, cBioportal, and KM-Plotter.	|cdks |cdks <> cdk4 <> cdk4 | |cdk4 |cdk4 |lipinski <> admet <> md |cdk4
3.	35447031 (2022): Discovery of a Novel Src Homology-2 Domain Containing Protein Tyrosine Phosphatase-2 (SHP2) and Cyclin-Dependent Kinase 4 (CDK4) Dual Inhibitor for the Treatment of Triple-Negative Breast Cancer. Chen, Shu, Li, Hou, Luo, Yang, Wu	The treatment of triple-negative breast cancer (**tnbc**) remains a huge clinical challenge and dual-targeted small-molecule drugs might provide new therapeutic options for this type of breast cancer. In this work, we discovered a series of **shp2** and **cdk4** dual inhibitors through a fused pharmacophore strategy and structural optimization. Notably, lead compound 10 with excellent **shp2** (IC50 = 4.3 nM) and **cdk4** (IC50 = 18.2 nM) inhibitory activities effectively induced G0/G1 arrest to prevent the proliferation of **tnbc** cell lines. Furthermore, compound 10 showed great in vivo pharmacokinetic properties (F = 45.8%) and exerted significant antitumor efficacy in the **emt6** syngeneic mouse model. Western blotting and immunohistochemical analysis confirmed that 10 effectively targeted on both **shp2** and **cdk4** and activated the immune response in tumors. These results indicate that lead compound 10, as the first **shp2** and **cdk4** dual inhibitor, merits further development for treating **tnbc**.	|tnbc |shp2 <> cdk4 |shp2 <> cdk4 <> tnbc |emt6 |shp2 <> cdk4 |shp2 <> cdk4 <> tnbc
4.	34911915 (2021): [Development of CDK4 & 6 Inhibitor Abemaciclib in Breast Cancer]. Masuda, Saji, Kawaguchi, Chen, Ohno	**abemaciclib** is a selective cyclin-dependent kinase(**cdk**)4 & 6 inhibitor, which induces **g1** cell cycle arrest and tumour growth inhibition. **abemaciclib** has been developed for use in hormone receptor positive(**hr++++++**)breast cancer, dosed daily in combination with endocrine therapy. In a phase **iii** clinical trial, **monarch** 2, for women with **hr++++++** and human epidermal growth factor receptor 2 negative(HER2-)advanced breast cancer who progressed after endocrine therapy, **abemaciclib** in combination with fulvestrant significantly improved not only progression-free survival and objective response rate but also overall survival, and demonstrated a tolerable safety profile. Another phase **iii** clinical trial, **monarch** 3, for women with **hr++++++** and HER2- advanced breast cancer, **abemaciclib** in combination with nonsteroidal aromatase inhibitor as an initial therapy also significantly improved progression-free survival and objective response rate. This review presents the rationale for the use of **cdk4** & 6 inhibitors in the treatment of breast cancer, background on the development of **abemaciclib**, clinical data focusing on phase **iii** studies of **abemaciclib**, and information on ongoing clinical studies of **abemaciclib**	|abemaciclib <> cdk <> g1 |abemaciclib <> hr+ |iii <> monarch <> hr+ <> her2- |iii <> monarch <> hr+ <> her2- |cdk4 <> iii



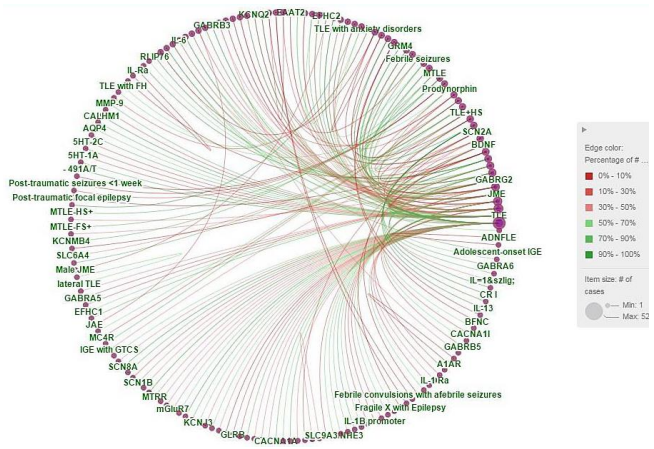
Illustrative examples from deep genetic and molecular profiling of epileptic disease



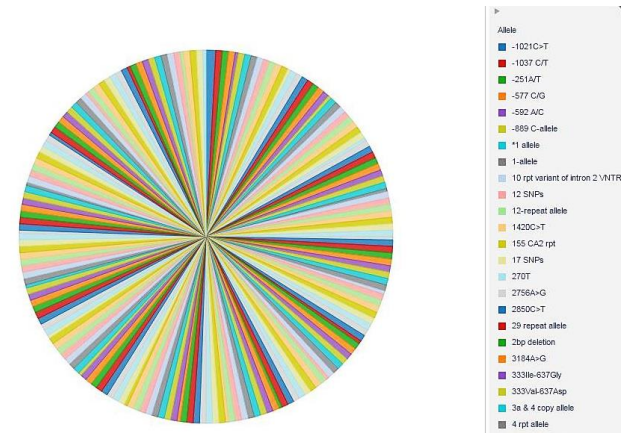
Genetic identifiers: Phenotypic association of susceptibility gene(s) across patient cohorts



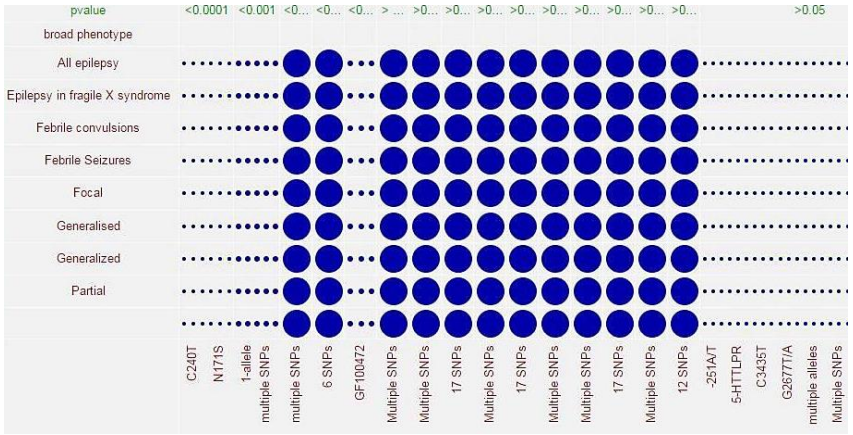
Genetic predisposition: Frequency of susceptibility gene(s) in patients grouped by phenotype and subtype



Genetic risk markers: Analysis of gene variants and association to disease phenotype & subtypes



Frequency analysis of susceptibility gene alleles correlated with phenotype in patient cohorts

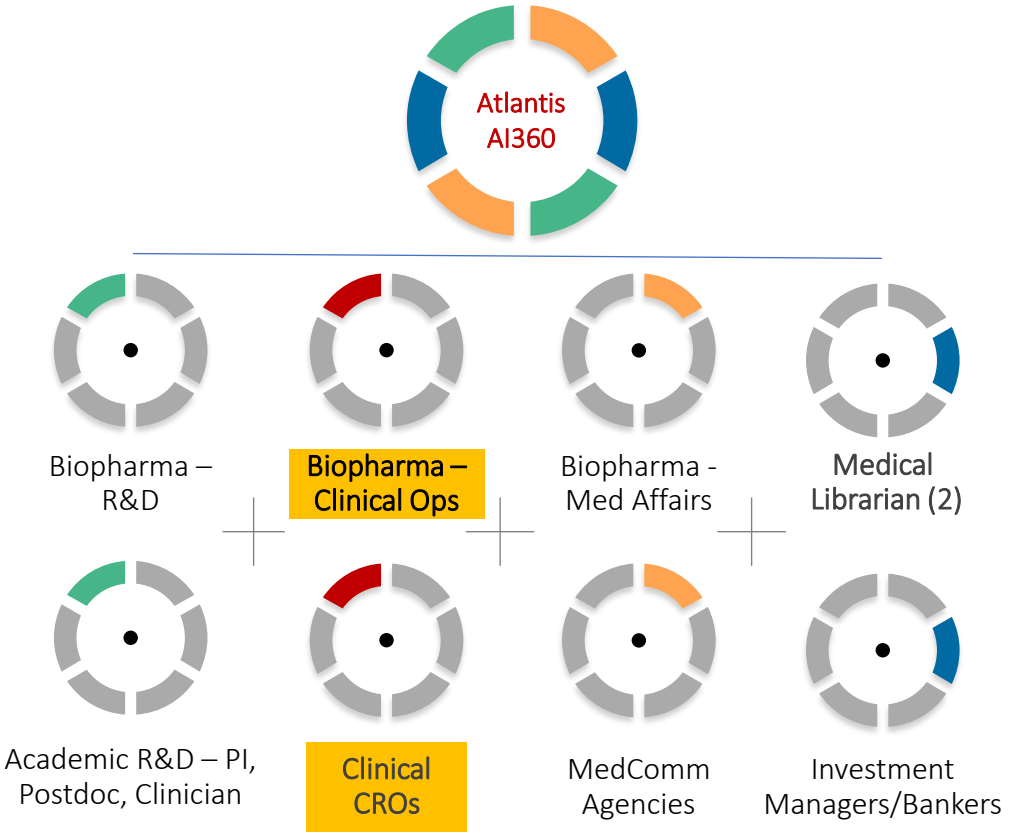


Statistical significance of allele frequencies associated with epilepsy phenotype in patient cohorts

30% of patients with epilepsy do not respond to any known treatment. The objective of this analysis was to identify molecular patterns predictive of disease progression, drug resistance and response and utilize those insights to develop translational strategies for therapy

Market Opportunity:: Atlantis AI360 User Community (Biopharma clinical trial recruitment)

The value of Atlantis AI360 is multi-fold and across functional areas in biopharma as well as non-biopharma domains -



Mapping of clinical sites for PI and Patient recruitment

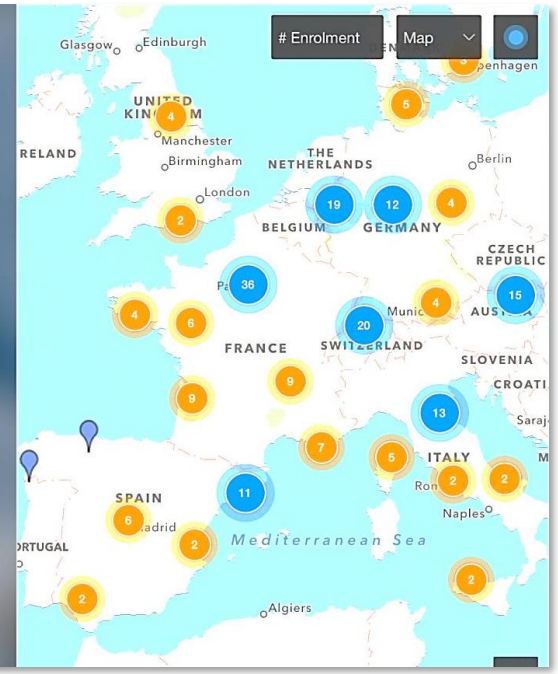
PI	Total Number of Clinical Trial Publications	Total Number of Patients	Avg Number of Patients	Total Number of Publications
Xichun Hu	12	1,057	117	25
Amy Tiersten	11	468	39	19
Zhonghua Wang	11	515	64	71
Wenham R	11	505	84	58
Daniel Rayson	9	15,300	3,825	64
Rachel Layman	8	151	25	19
Srock S	8	3,211	535	12
Landherr L	8	428	107	40
Aloe A	7	489	82	18

Srock S

Address :
Hoffmann-La Roche Ltd
Basel

Switzerland

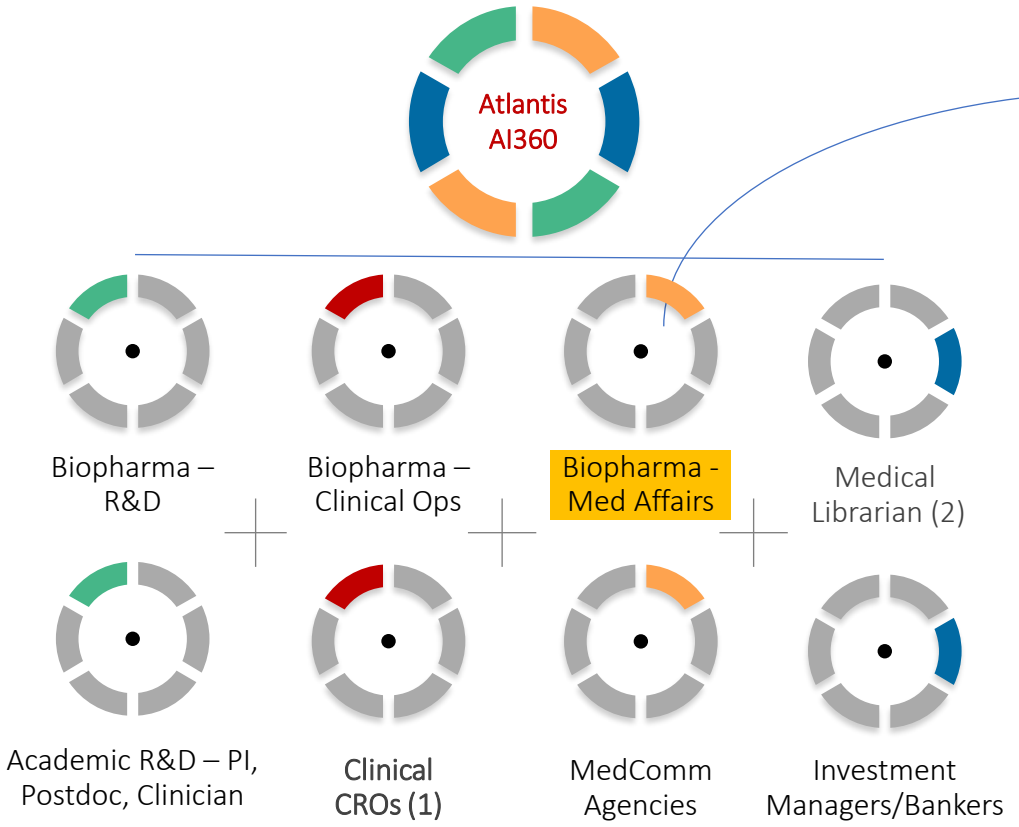
Clinical Trial ID:
NCT00528567, NCT01094184, NCT01201265, NCT01461044



Personal experience – Developed a clinical trial management POC for Quintiles (now part of IQVIA) to assist client (Pfizer) identify new clinical sites for studies – delays in contracting PIs and patient recruitment is a major issue in pharmaceutical R&D. Pic on right shows mapping of PIs by institution/zip codes

Market Opportunity:: Atlantis AI360 User Community (Medical Affairs)

Example: Medical Information Scientist, Big Pharma company



Sample JD for roles within pharma that will benefit directly from Atlantis AI360

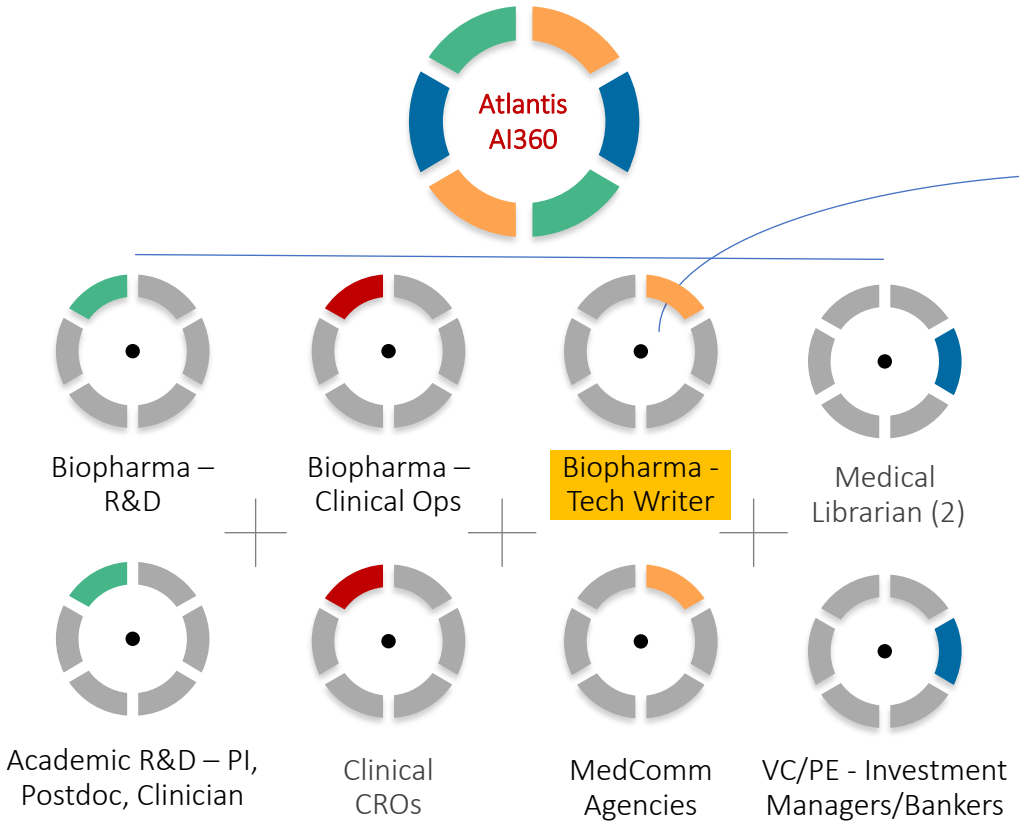
Medical Information (MI) Scientist, Pfizer - Medical Information Management role identifies, acquires, analyzes, summarizes and annotates scientific, business data, and information to support innovation and decision-making within business processes.

Description and Responsibilities:

- Information Scientist - combines scientific, pharmaceutical and information science knowledge to provide information and intelligence which supports decision making throughout R&D
- Experience in Pharmaceutical Industry Medical Information is Required
  Serves as SME for MI on responsible product(s) and associated therapeutic area(s)
- Researches and analyzes scientific information to answer escalated MI inquiries taking into consideration labeling differences between countries
- Creates, maintains and optimizes local, regional and global MI document collections by ensuring that responses are medically and scientifically accurate, timely, fair balanced, and meet customers' needs
- Ensures availability, accuracy, and maintenance of medical content via digital channels such as the MI country websites and Medication Pages, as well as performing website search optimization for ease of content identification by customers
- Analyzes inquiry data to identify trends and communicates relevant information to the Product/Therapeutic Area cross-functional team(s)
- Maintains compliance with country, regional, and global training requirements on standard operating procedures (SOPs) and local laws, regulations and marketing practices

Market Opportunity:: Atlantis AI360 User Community (Biopharma technical writing)

Example: Technical Writer, Abbott



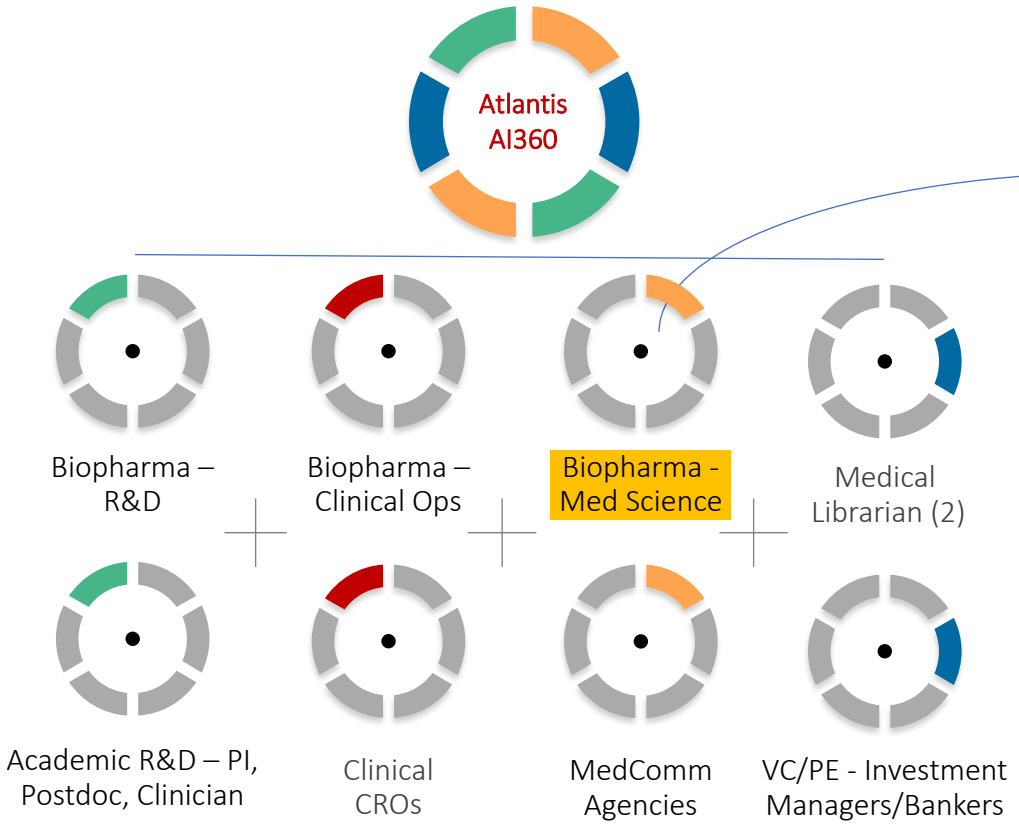
Technical Writers in biopharma will benefit directly from Atlantis AI360

Senior Medical Science Liaison, Breast, Gastrointestinal, & Gynecologic Oncology, Genentech Roles and Responsibilities:

- *Research topics to build PowerPoint educational talks that combine base knowledge, guidelines, and latest information to teach experienced laboratorians new information.*
- Build and maintain a scientific library that is compliant with Abbott guidelines. Research published articles and critically evaluate the methodology. Write summaries of journal articles in formats that will either be directed to internal training or meant for customers to read and understand
- Write and maintain files on informative journal abstracts according to current or estimated future needs
- Research, write, and edit documentation, and manuals in support of Scientific Affairs, Marketing, Sales, and Training divisions
- Be able to educate an audience on identified disease topics, such as at a sales training
- Coordinate revisions, reviews and approvals

Market Opportunity:: Atlantis AI360 User Community (Medical Science Liaison)

Example: Medical Science Liaison (MSL), Big biotech company



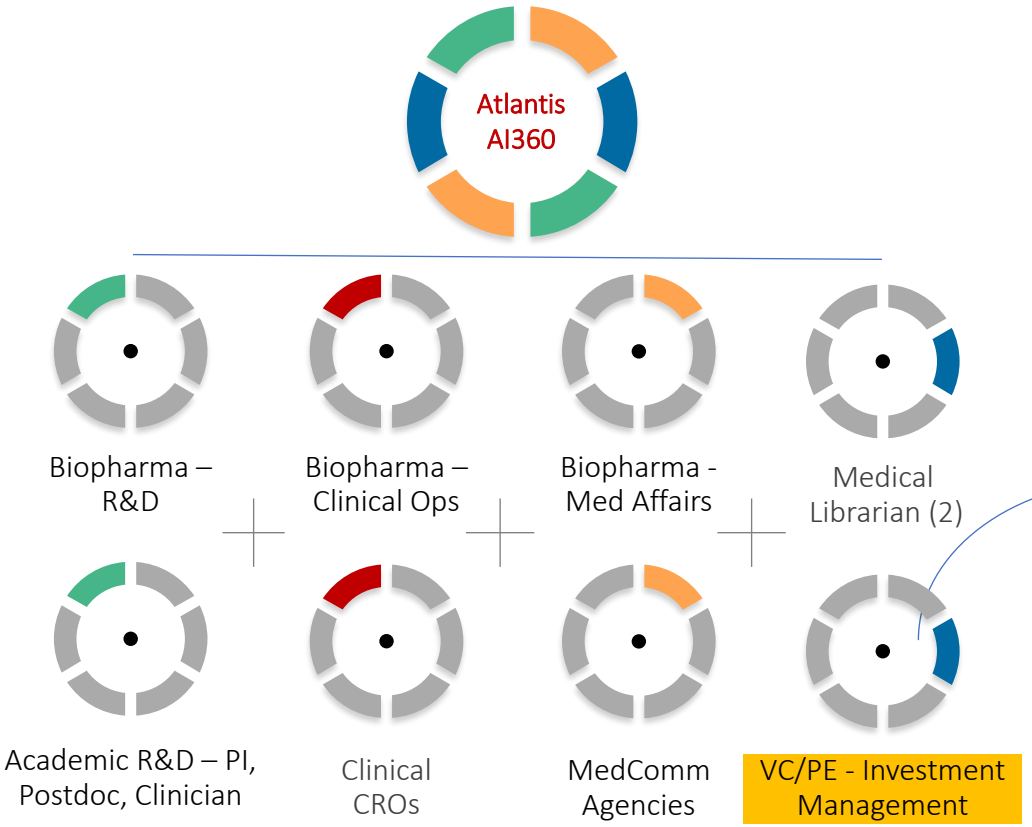
MSLs in biopharma industry will benefit directly from Atlantis AI360

Senior Medical Science Liaison, Breast, Gastrointestinal, & Gynecologic Oncology, Genentech Roles and Responsibilities:

- Demonstrate deep scientific expertise about assigned molecules/products, franchise(s) and overall therapeutic area(s) to exchange relevant information and insights with top tier thought leaders and healthcare decision makers within a region
- Engage in continuous independent learning within the therapeutic area they represent and actively attend and participate in upskilling programs related to assigned molecules, products, disease states and relevant business topics
- Share clinical and value-based expertise in the development and management of clinical and scientific communications for customers to include publications, conference data, and educational materials, as well as for internal Genentech communications and materials to be used in training and development activities
- Knows how to summarize and communicate complex information and business objectives in a concise and effective way for important presentations and decisions

Market Opportunity:: Atlantis AI360 User Community (Investors)

Example: Venture Capital/Private Equity/Investment firm



VC/PE analysts will benefit directly from Atlantis AI360

Venture Associate, Sofinnova, Menlo Park, CA - Sofinnova Investments is a biopharma investment firm with ~$2.6B in AUM. They invest in both private and public equity of therapeutics-focused companies. We are seeking an Associate to join our PE team.

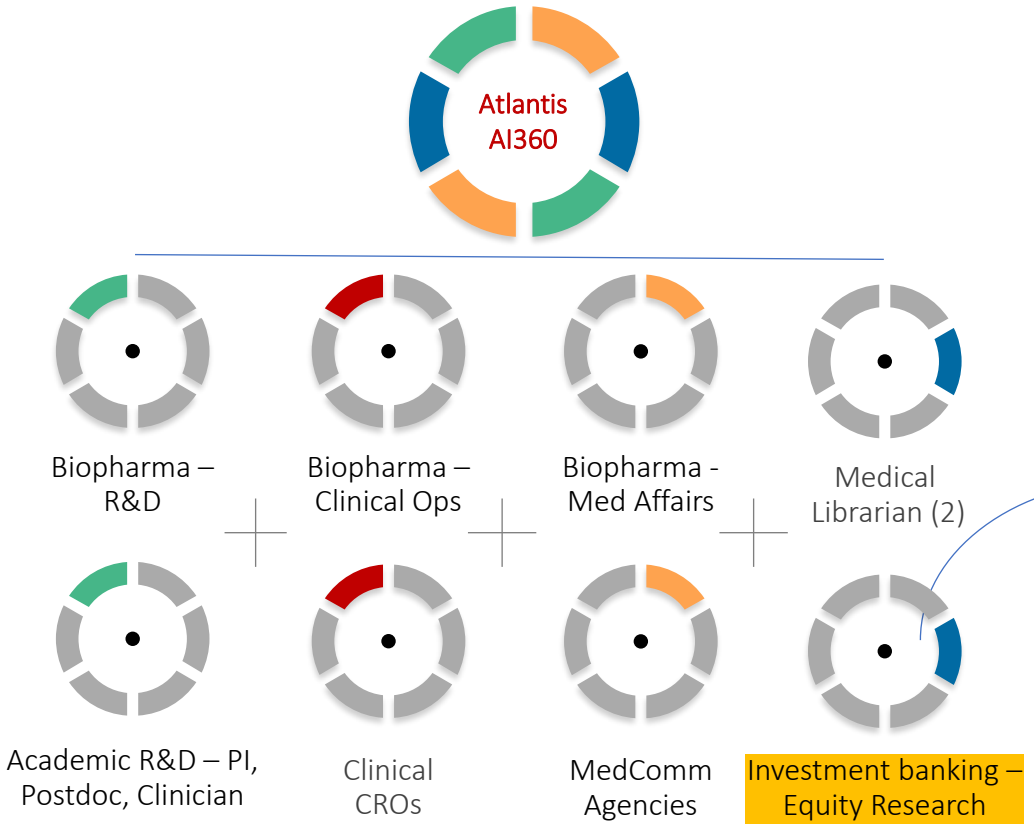
Roles and Responsibilities:

- Investment due diligence - Conduct primary industry diligence, including deal screening, review of scientific literature, gathering feedback from consultants, analysts, and investors; Search and compile information from industry databases (prescriptions, market estimates) for diseases/therapies; Aggregate and analyze relevant industry news flow; Attend and report on scientific, medical, and investment conferences
- Participate in company DD meetings - Analyze and interpret scientific and clinical data, review competitive landscape, regulatory path, commercial potential, IP, develop market and company specific valuation model
- Database mining, Benchmarking, Portfolio management, Source potential investment deals, Build a strong network with members of the biotech/ life science ecosystem

Notes: Personal experience – Therapeutics focused investment banks/merchant banks such as the ones I have worked with previously as a Managing Director of life sciences investments and transactions need to develop subject matter expertise that is comprehensive, authoritative, accurate and current – this in an extremely fast-paced environment given the volume of potential opportunities that come in and the extreme nature of risk involved in therapeutics company investments. VCs and PE funds likewise have a similar challenge and must have a robust evidence driven mechanism to take go/no-go decisions.

Market Opportunity:: Atlantis AI360 User Community (Investment Banking & Equity Research)

Example: Equity research, Investment banking firm



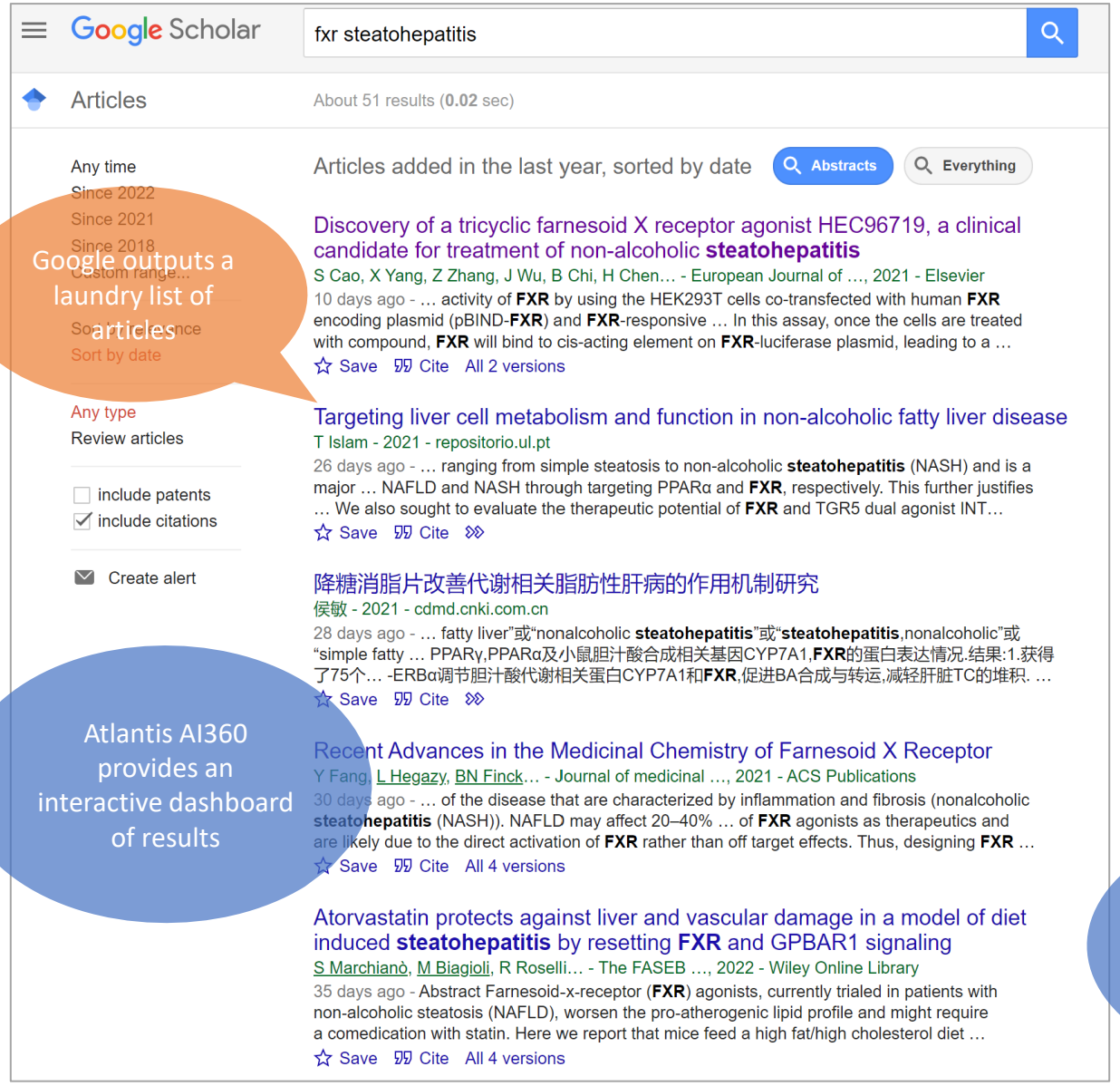
I-banking associates will benefit directly from Atlantis AI360

Equity Research Associate - Biotechnology (Evercore ISI), Evercore, New York, NY. Evercore (NYSE: EVR) is a premier global independent investment banking advisory firm dedicated to helping clients achieve superior results through trusted independent and innovative advice on matters of strategic significance to boards of directors, management teams, and shareholders - including M&A, shareholder advisory, restructurings, and capital structure.

Roles and Responsibilities:

- Author industry and company-specific research reports; Deep analysis of scientific literature to inform investment theses and analysis of therapeutic areas
- Assist team in expansion of coverage through initiation reports; Oversee data collection and monitor investor news services; Develop and update company-specific and industry financial models; Perform financial and valuation analysis of covered companies in the biotechnology space
- Ability to analyze scientific literature and data; Excellent communication skills; the job entails significant writing and PowerPoint responsibilities; Scientific background preferred

Competition:: Google Scholar vs Atlantis AI360 (Search for “fxr in steatohepatitis”)



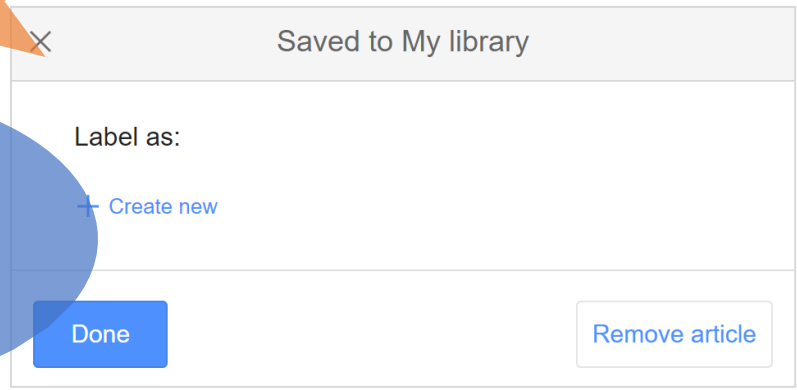
Google outputs a laundry list of articles

Atlantis AI360 provides an interactive dashboard of results

User trawls through each article manually

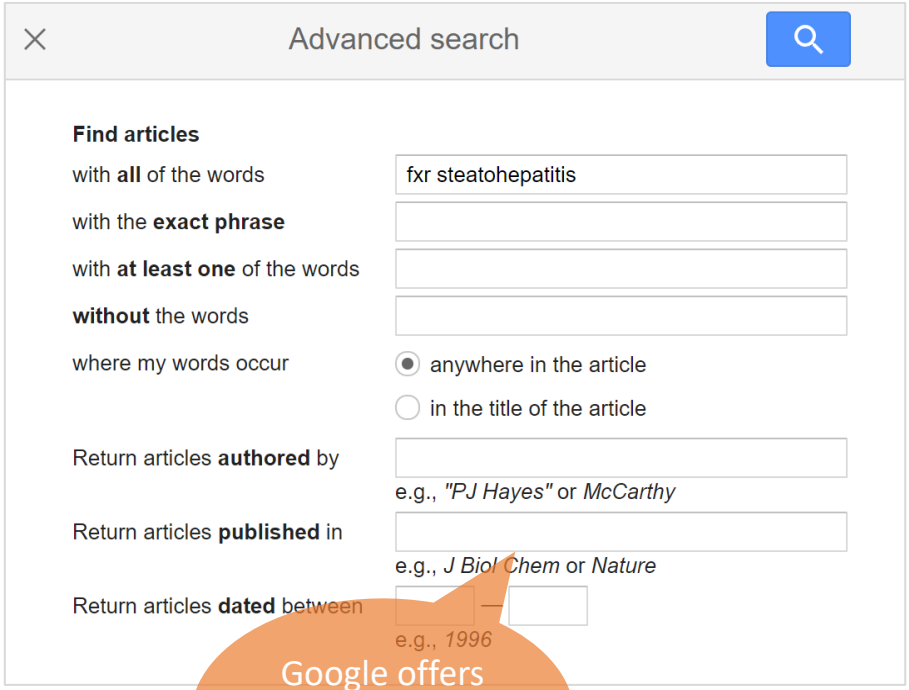
Atlantis AI360 provides NLP driven insights from each article

User can save article for future reference



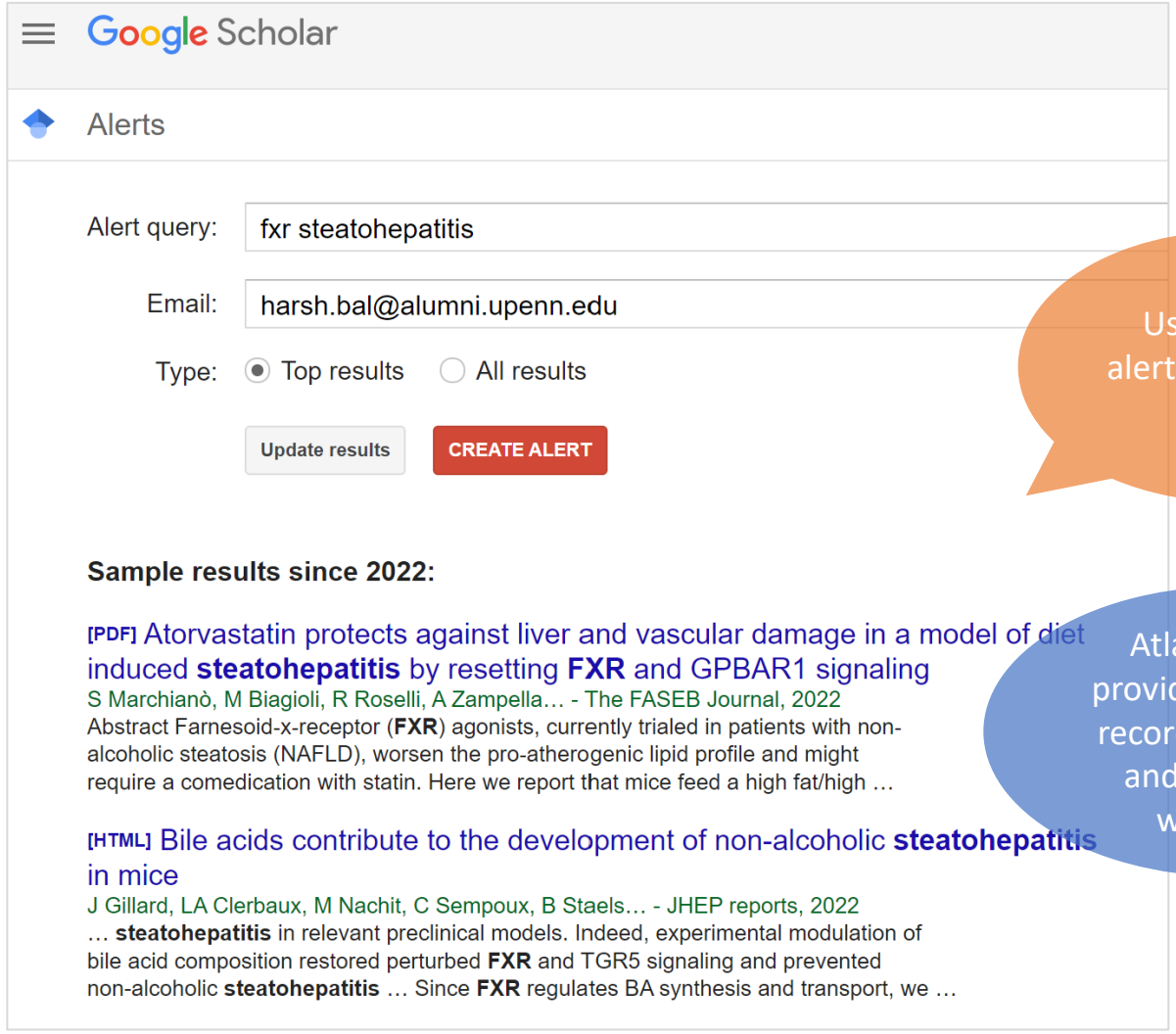
Atlantis AI360 provides persistent record of searches and structured workflows

Competition:: Google Scholar (Search Engine)



Google offers limited search options

Atlantis AI360 has a rich interface and provides all above options



User can set alerts for specific topics

Atlantis AI360 provides persistent record of searches and structured workflows

Competition:: Google Scholar (Limitations)

User is left to labor through the data in a manual piecemeal fashion

Google Scholar provides access to data… *BUT ACCESS TO DATA IS NOT THE PROBLEM!*

Analyses
Insights
Knowledge
Intelligence
Automation
Workflow
Incubator
MarketPlaces

No other company, nor does Google provide this

	Google Scholar	Atlantis AI360
NLP-driven insights and article summaries	No	Yes
Translational 360 views	No	Yes
Protein – protein interactions	No	Yes
Mapping of global R&D, KOL, patient recruitment sites	No	Yes
Interactive HTML dashboards	No	Yes
Automated PowerPoint Generation	No	Yes
User StoreFronts	No	Yes
B2B MarketPlaces	No	Yes

Comparables:: Recent Deals in Data Automation, Literature Access and MarketPlaces

SlideShare is a hosting service for professional content including presentations, infographics, documents, and videos. Users can upload files privately or publicly in PowerPoint, Word, PDF, or OpenDocument format. Was acquired by LinkedIn in 2012 for ~$120M and recently bought out by Scribd (price undisclosed)

slideshare

andreessen horowitz

Golden raises $14.5m Series A led by a16z, is building an extensive database and graph of knowledge for humanity, including commercial tools and community features to aid discovery and decisions. Participating investors include DCVC, Gigafund, Harpoon Ventures, Chris Lyons & the a16z Cultural Leadership Fund, WndrCo, Great Oaks Venture Capital, Vela Partners, HNVR, Socii Capital, …

GOLDEN

T.RowePrice®

Canva is now valued at $40B following fresh capital injection of $200M in round led by T. Rowe Price. New and existing investors participated, incl., Franklin Templeton, Sequoia Capital Global Equities, Bessemer Venture Partners, Greenoaks Capital, Dragoneer Investments, Blackbird, Felicis and AirTree Ventures

Canva

GGV CAPITAL

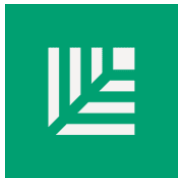
Mindee Comes Out of Stealth Mode Raising $14M with its Developer Tool for Document Parsing that Eliminates Manual Data Entry in Software Applications and Automates Document Processing; GGV Capital Leads A Round with Alven, Serena Capital, and Bpifrance through its Digital Venture fund, and Tech Dignitaries from Algolia and Datadog

mindee

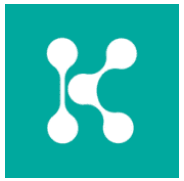
Purvi Capital & others

DeepDyve is a commercial website that sells access to scientific and scholarly articles from academic publishers. It bundles access to many publishers within their subscription, rather than the user buying access to each journal individually. Access is available on a monthly or annual subscription basis. Some articles require additional fees on top of the subscription.

deepdyve



Knowde is a marketplace for chemistry ingredients and polymers and offers access to >2,000 suppliers and 100,000+ chemical products. In August 2021, it raised $72M in Series B financing led by Coatue along with existing investors Sequoia, Refactor Capital, Bee Partners and Cantos Ventures



Comparables:: Recent Deals in AI/ML in drug R&D (Representative list)

1. September 2022: CytoReason today announced an extension of its multi-year partnership with Pfizer to use CytoReason's artificial intelligence technology for Pfizer's drug development programs.

2. September 2022: UK-based deep-learning research company discovering and developing transformational medicines CHARM Therapeutics announced a $50 million Series A financing (F-Prime Capital and OrbiMed, General Catalyst, Khosla Ventures, Braavos, Grep VC and Axial)

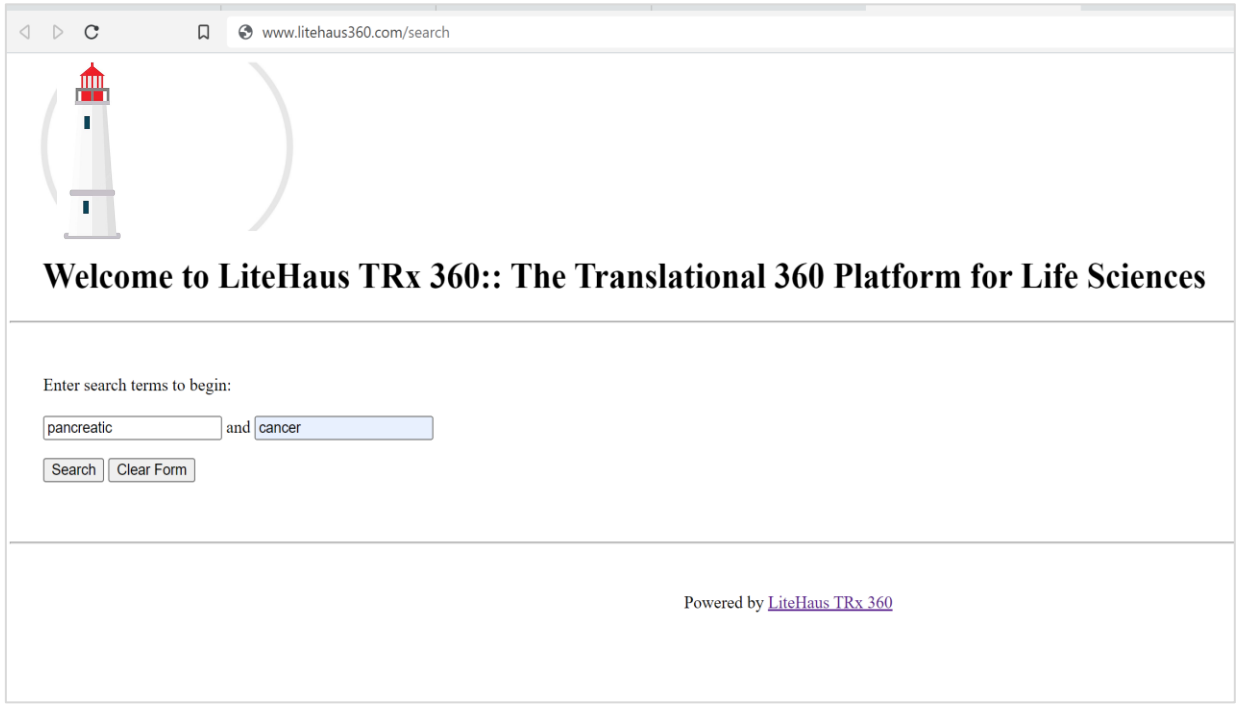
3. February 2022: Terray Therapeutics closed a $60 million Series A financing to advance its novel AI/ML platform and deliver therapies to patients faster (Madrona Venture Group, Two Sigma Ventures, Digitalis Ventures, KdT Ventures, Goldcrest Capital, XTX Ventures, Sahsen Ventures, Greentrail Capital and Alexandria Venture Investments)

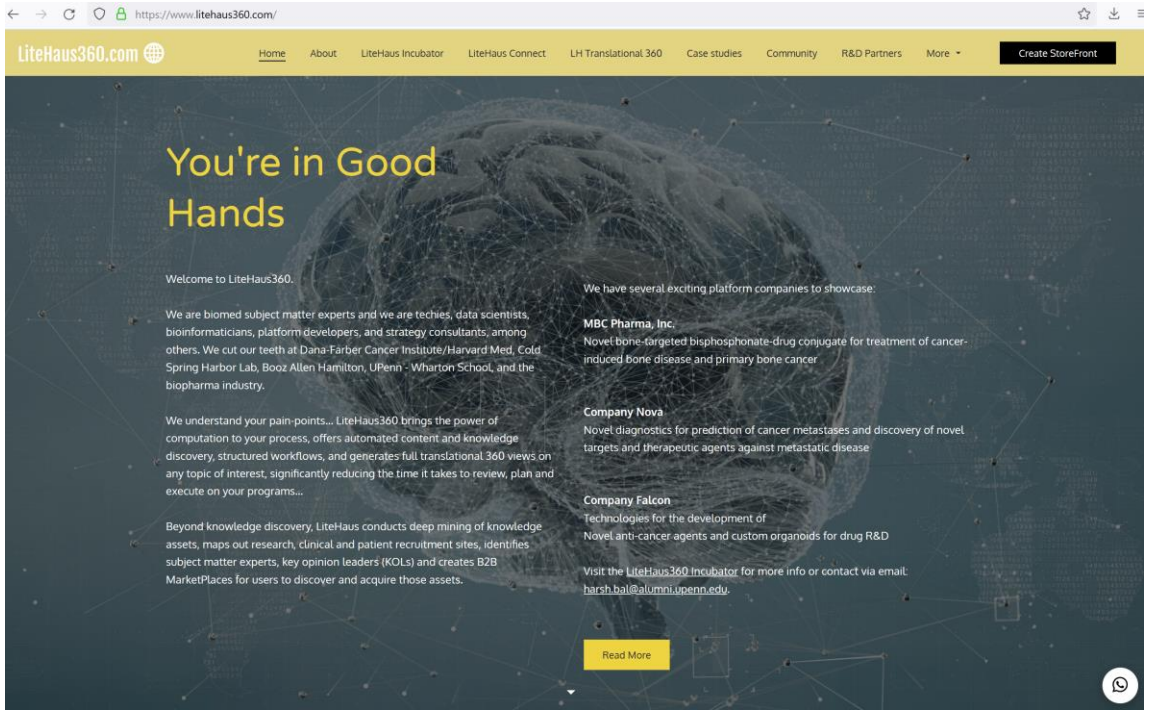
4. December 2021: METiS Therapeutics drew an $86 million Series A financing to harness AI/ML to redefine drug discovery and delivery and develop optimal therapies for patients with serious diseases (Sequoia Capital China, Lightspeed, 5Y Capital, FreeS Fund and CMBI Zhaoxin Wuji Fund)

5. October 2021: After Helping Pfizer Speed Up Its Vaccine Trials, Saama Technologies Strikes A $430 Million Deal With Carlyle; Forbes.

6. October 2021: Exscientia raises $510 million from a $350 million IPO and a concurrent $160 million private placement led by SoftBank.

Journey so far:: Atlantis AI360 Platform Ready and in Use; Fully Function Website Live





- A fully functional and working platform is available and in use: An enterprise web version can be deployed immediately

- Atlantis AI360 domain name acquired, website is live and three US based US Biotechs on-boarded as paying customers

Journey so far:: Market traction with Three Paying Customers onboarded on Atlantis AI360 Incubator

Atlantis AI360 Incubator Clients

Three paying customers have been on-boarded on the Atlantis AI360 Incubator:

1) MBC Pharma: Aurora, CO based bone targeting in cancer therapy with a strong pipeline of IND stage lead compounds seeking Series A funding
2) Clonexpress: Gaithersburg, MD based privately held cancer drug R&D company with proprietary organoid technology for licensing and sale
3) Mestastop: Bengaluru and Marlton, NJ based privately held cancer drug R&D company with novel diagnostics and therapeutics technology

Atlantis AI360 NLP Knowledge Engine Clients

World's #1 Pharma co

Contract to utilize Atlantis AI360's NLP-driven deep data mining and knowledge generation engine to develop a roadmap for early clinical development across all key therapeutic areas (immunology, oncology, inflammation, cardiovascular, infectious and rare disease) -

1) Conduct deep mining of molecular, clinical and real-world data to deliver a high impact data science strategy from a patient engagement and health outcomes point of view
2) Enhance understanding of molecular basis of pathogenesis, aberrant signaling mechanism and pathways of strategic value; identify key prognostic and predictive markers of disease, uncover new or underserved areas of significant unmet need
3) Enhance success of clinical trials, improve outcomes for patients and drive precision medicine through evidence-driven selection of patient subpopulations

Testimonials:: Wall Street Firm, Biopharma Companies and Academic Researchers from Top Institutions

UCSF trained MD physician, **Bloomberg** who covers biopharma stocks

"What you showed me (automated content and insights generation, geolocation mapping of assets) is extremely cool!"

"While we are a leading data/tech company, a lot of the stuff behind the scenes is not exactly cutting edge and needs this kind of analysis and automation"

"Great timing as one of my London based colleagues and I are doing thematic coverage of specific molecular targets and this is perfect for that analysis"

VP, Early clinical Development Science, **Pfizer**

"… resources such as Crunchbase, PitchBook and others do not provide the deep scientific, clinical, medical and competitive data that Atlantis AI360 provides… "

Prof. of Clinical Pathology, **Nationwide Children's Hospital**

"…we deal with multiple reagents for clinical and research purposes; we use plain-old Excel and it is very tedious to manage. Atlantis AI360 would be tremendously valuable in clinical and research labs"

"…retrieval of data from journal articles is very useful…"

Global Medical Affairs Leader, **AstraZeneca**

"… current best practices and clinical guidelines in gastric cancers will allow us to assess our portfolio and gaps. Atlantis AI360 translational 360 is an excellent platform for that" (paraphrased)

Group Leader, **Los Alamos National Laboratory**

"…very useful tool and a great resource for life sciences!"

Group Lead, Clinical Trial Data Management, **Pfizer**

"…extremely well-designed and useful platform for drug R&D"

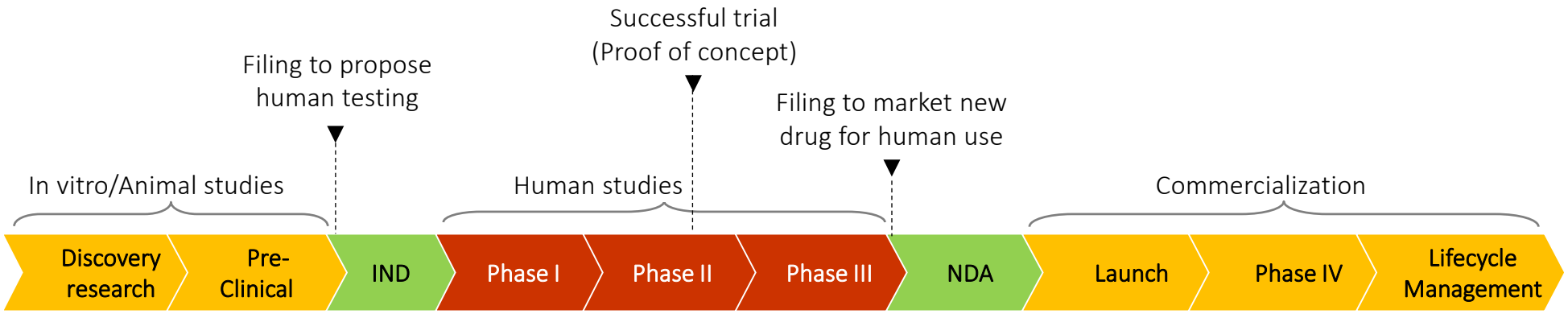
Future roadmap:: Markets, Products and Sales

Atlantis AI360 Markets (Where all does Atlantis AI360 play?)
1. Biopharma (Discovery research)
2. Clinical operations
3. Medical affairs
4. Service companies (GLP Labs, CRO, CDMO, …)
5. Supplies (lab reagents, instruments, equipment, …)
6. Venture capital
7. Investment banking
8. Equity research

Atlantis AI360 Products (What does Atlantis AI360 offer clients?)
1. Genie (Search engine)
2. NLPac (Content automation and knowledge generation)
3. Beacon (Interactive browser)
4. B2B MarketPlaces (business exchange)
5. Incubator (Funding engine, R&D collaborations)
6. B2B Partnering app (business development and licensing)
7. Career portal (Placements)

Atlantis AI360 Sales (What are the Atlantis AI360 revenue streams?)
1. Atlantis AI360 Search - Digital ad revenues from online promos (Google-like model)
2. Content automation and knowledge generation - Annual subscription (enterprise) or pay per use model (individual)
3. Business incubator - Upfront listing fee + 7-10 % success fee on capital raise + % stock (investment banking model)
4. B2B MarketPlaces - Listing fee for user StoreFronts + 4% of every transaction (Paypal like model)
5. Placement services – Life, biopharma, medical and healthcare sciences focused career services portal

GTM Strategy:: Digital marketing approach across the pharma value chain



Segments	Examples	Actors (typical user profiles)	Atlantis AI360 use cases (sampling)
Industry	Pharma, biotech, devices, …	Scientists, clinicians, medical affairs, regulatory affairs, …	Search, Content generation, MarketPlaces, Placements, …
Academia	University Labs, Federal R&D Centers	Scientists, clinicians, …	Search, Content generation, R&D Collaboration, MarketPlaces, Placements, …
Service providers	CRO, CDMO, …	R&D, clinical organizations, data companies, …	Search, Digital ads, PI/KOL Identification, Patient recruitment, …
Enablers	Reagents, equipment, instrumentation, software, …	Fine chemicals, antibodies, enzymes, cell lines, disease models, …	Search, Digital ads
Facilitators	Finance, IP law	Venture capital, private equity, investment banks, Equity analysts, …	Search, Digital ads, Content generation, Competitive Analysis

Marketing channels

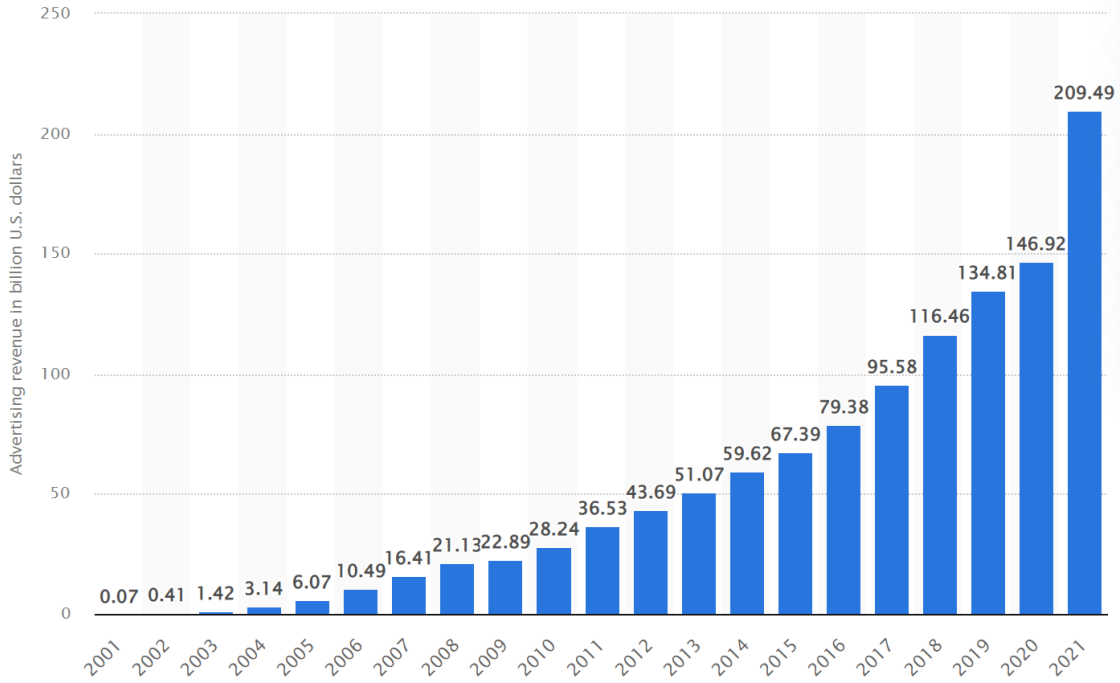
1. LinkedIn
2. Facebook
3. Instagram
4. D2B emails

Revenue streams

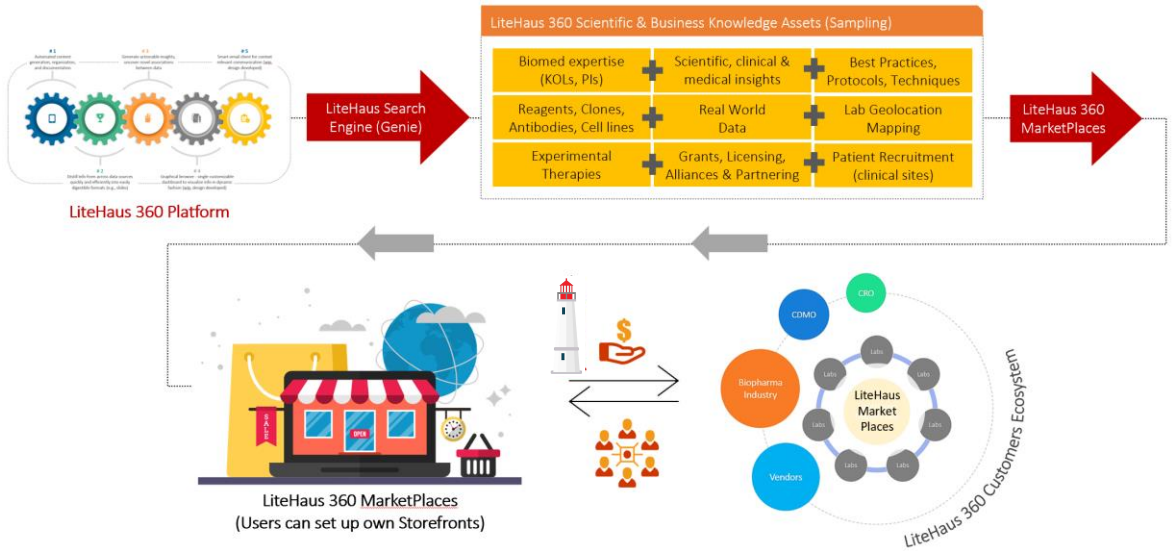
	Market segments	Business model
1	Atlantis AI360 Translational 360 (Content automation and knowledge generation, incl., searching and displaying images and videos)	Annual subscription (enterprise) or pay per use model (individual)
2	Atlantis AI360 Search - Digital ad revenues from online promos	Google-like online advertising for life sciences
3	Atlantis AI360 MarketPlaces	Online stores for life sciences assets, discoveries and technologies

Sales Projections (AI 360 Search engine)

Search is a key requirement for life sciences and no efficient search and advertising engine exists for users or vendors because of the inherent complexity of the subject matter. As an example, Google search fails to provide ad for deep science related searches (see next few slides). Google generated $104 billion in 2021 from digital ad revenues, incl., from assets such as Gmail and Maps. Atlantis AI360 provides both an intelligent email as well as asset maps (see Slide 11) that are relevant to life sciences users.



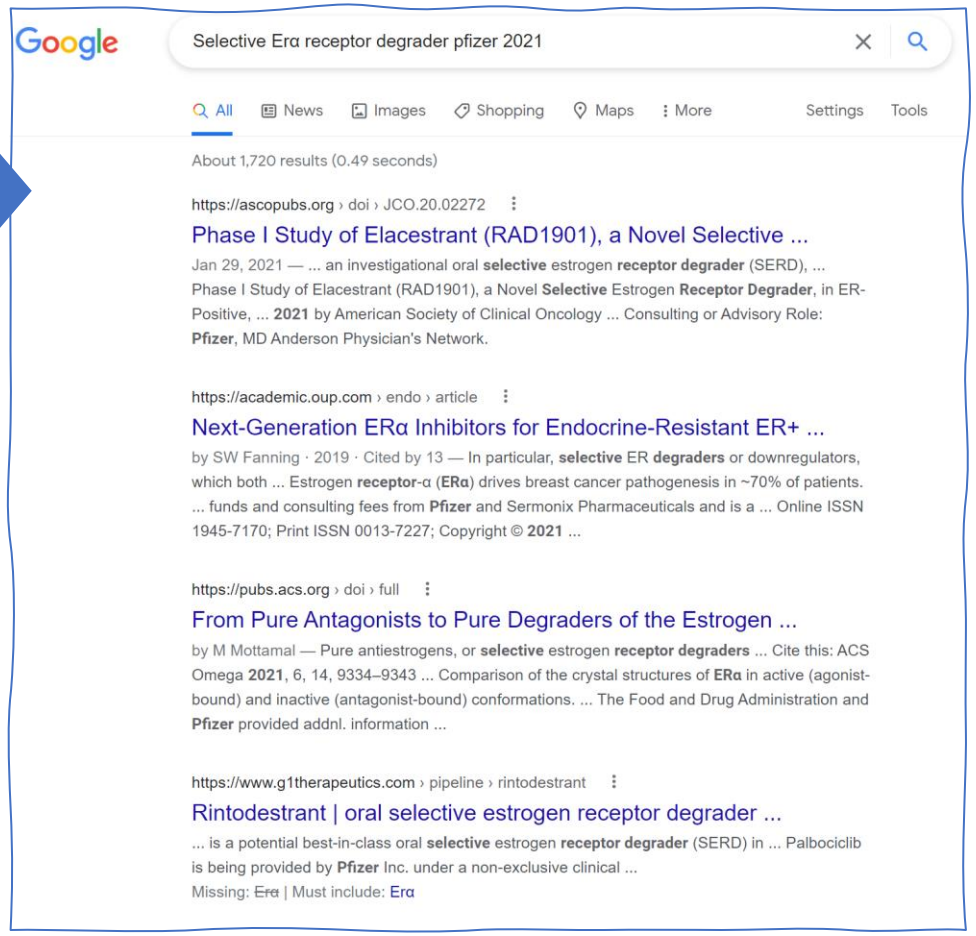
Advertising revenue of Google from 2001 to 2021 (in billions USD)

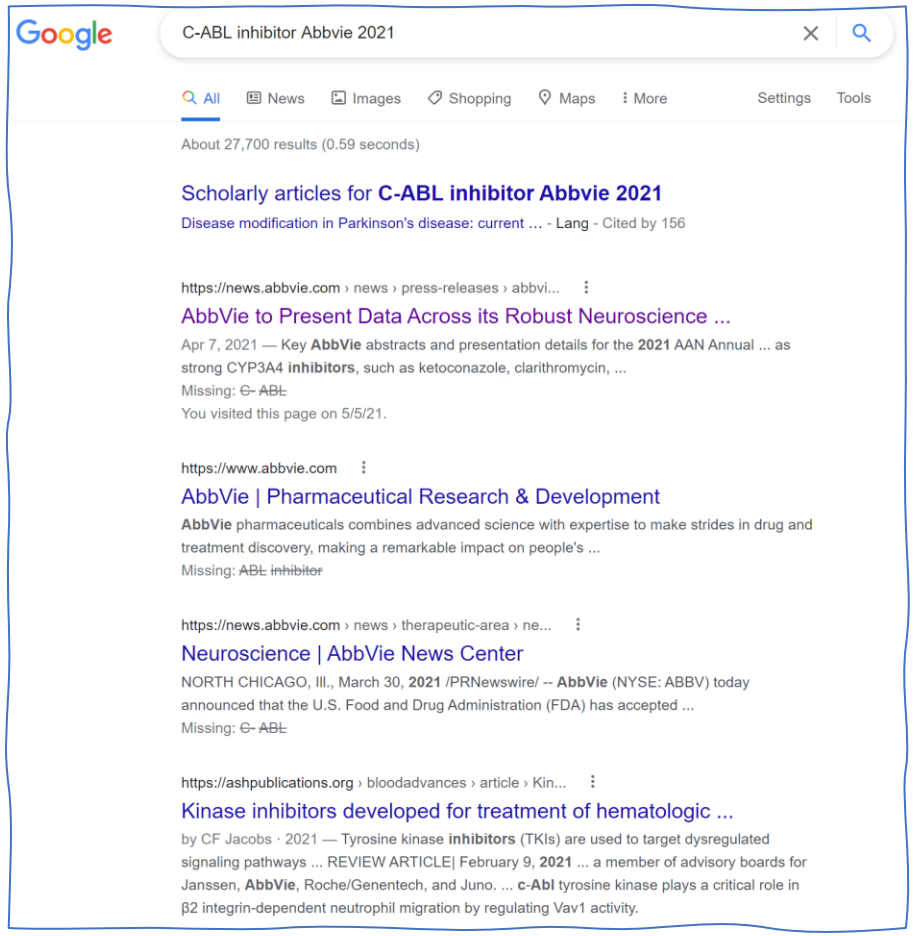


Atlantis AI360 Search will link Atlantis AI360 knowledge assets, Atlantis AI360 NLP insights and Atlantis AI360 MarketPlaces, thereby creating immense value for users and vendors alike

Competition:: Search for life sciences (Google's Limitations)

No ads displayed on Google for scientific terms

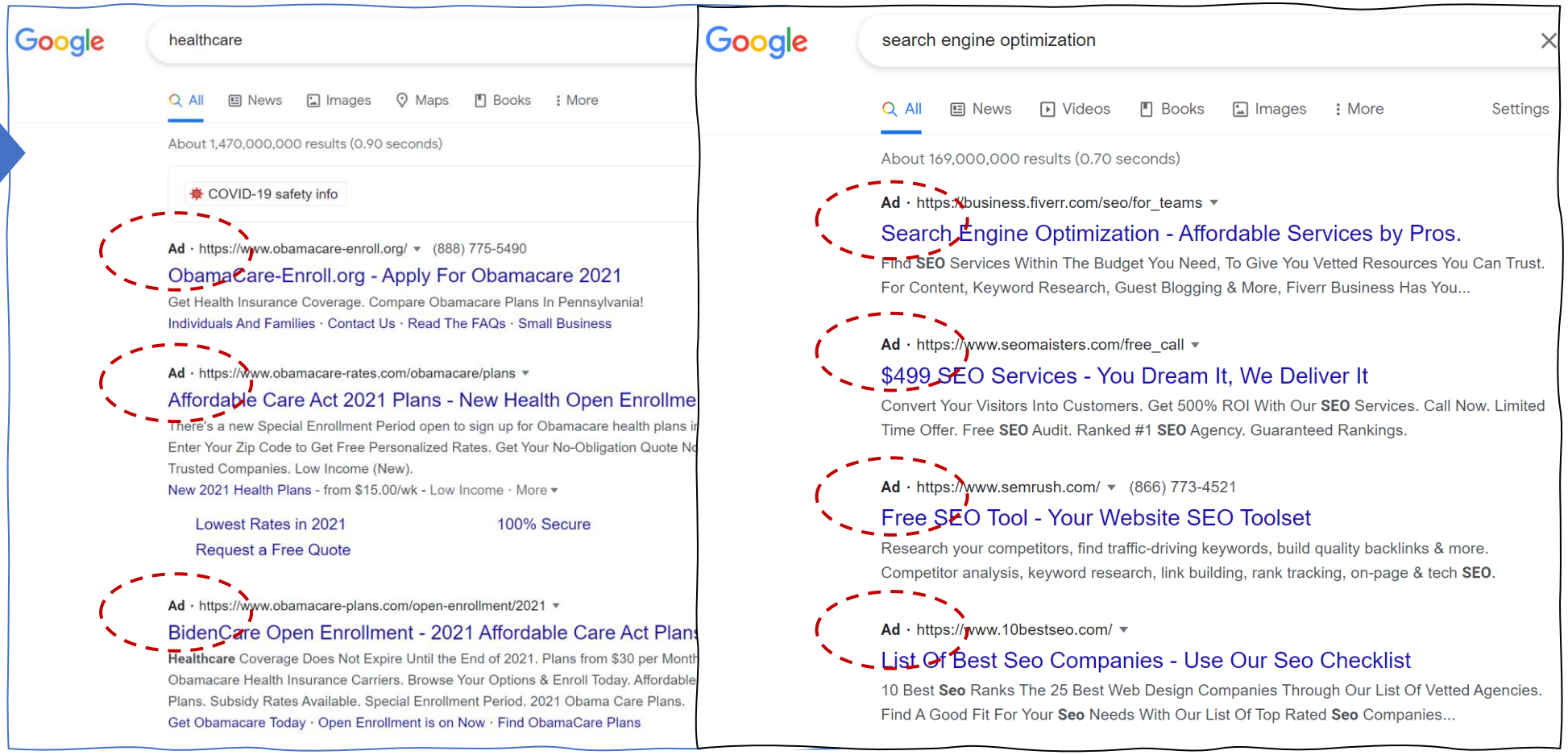




Google search for deep science type queries returns no ads on top while Google search for general terms returns number of ads – this is a clear limitation of Google

Competition:: Google search for general terms

Plenty of ads for general terms



Google search for deep science type queries returns no ads on top while Google search for general terms returns number of ads – this is a clear limitation of Google

Key Financial Metrics:: Past and Future

1. Total size of community (paying and free)
2. Total number of paying customers by business
3. New customers per month
4. Customer attrition
5. Subscription paid per month
6. Upfront cash via subscriptions
7. Upfront cash via listing fee
8. Future cash via success fee, stock sale
9. Profit margins

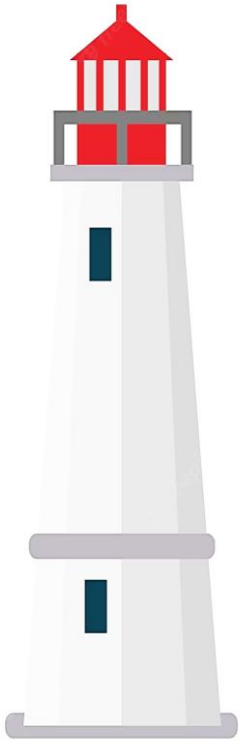
Fund Requirements, end use with timelines with one line target outcome (MRR/ARR)

1. Build out enterprise version of the Atlantis AI360 platform consisting of the following components
    a) Atlantis AI360 Search (Genie)
    b) Data mining engine (NLPac)
    c) Interactive browser (Beacon)
    d) B2B MarketPlaces
    e) Business Incubator
    f) Companion ecommerce website and mobile app

2. Seeking USD ~$0.25 – 0.5M funding
3. Objectives
    1. Atlantis AI360 Engine, MarketPlaces and Incubator go live online
    2. Put together sales, marketing and technology development team
    3. Steady month on month and year on year growth
    4. Consistent digital marketing campaign to build user base
4. Target outcome - Atlantis AI360 Engine, MarketPlaces and Incubator go live online with an MRR of USD 0.5M, and an ARR of USD 6M
5. Time to market ~6 months

Atlantis AI360 is seeking Series A to build out enterprise version of the platform, go live as a B2B company and build technical and sales team

CONTACT



Harshawardhan Bal, PhD

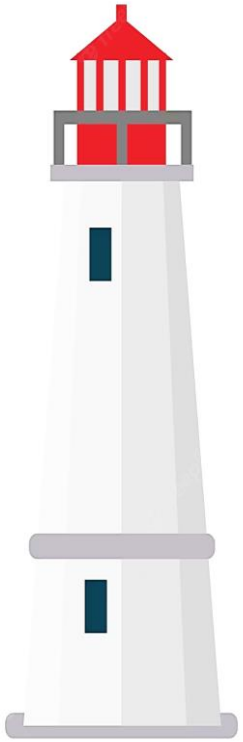
Founder, Atlantis AI360

E: harshawardhan.bal.wm17@wharton.upenn.edu

T: 302 476 0518

Atlantis AI360:: Building Intelligent Online MarketPlaces for Life Sciences

FAQ



Harsh Bal, PhD

1st May 2024

Confidential

1) What was the main problem that prompted you to create Atlantis AI360?

The genesis of Atlantis AI360 is the tremendous abundance of raw data and a commensurate dearth of actionable insights, especially but not limited to life sciences, biopharmaceutical and healthcare R&D. I have combined my ~20 years of hands-on experience analyzing complex biomedical data and learnings to develop an enduring solution based on an ecosystem approach. Atlantis AI360 addresses underlying causative factors, engages the stakeholder community and enhances R&D productivity through creation of MarketPlaces that allow discovery and sharing of data, information, knowledge, resources, technologies, best practices and expertise

- Abundance of raw data, lack of actionable insights, and a siloed approach to discovery, incl., low patient participation in clinical trials has made the traditional R&D engine highly inefficient (in time, money, resources, effort, lives) in bringing products to market; frequently drugs that make it to the patient have sub-optimal or questionable safety and efficacy. Atlantis AI360 addresses the biomedical actionable insights problem through its content automation application (Genie), data mining engine (NLPac), Knowledge Assets (Scientia), visual discovery browser (Beacon) and business exchange mechanism (MarketPlaces)

2) How do you ensure Atlantis AI360 is comprehensive, authoritative and up to date?

The insights generated by Atlantis AI360 are based on data from 100s or 1000s (depending on the nature of the subject matter and the extent of search) of journal articles and therefore vetted by a vast research community

- Atlantis AI360 builds Knowledge Assets from the global research community – assets are derived from a range of sources (principally but not exclusively) original publications by research groups and professionals globally from reputable research institutions who are experts in their field of practice and follow a rigorous peer-review process
- Atlantis AI360 Beacon provides filters to search data across a time range – last 100 days, last 500 days, last 5000 days and others as needed – it is therefore able to keep up with the latest reported research findings

3) How are you different from Google Scholar and other such engines?

Atlantis AI360 is an ecosystem vs a standalone service

- Atlantis AI360 is a scalable and extensible platform – Content automation and authoring (Genie) + Insights generation (NLPac) + Graphical viewer for search and discovery (Beacon) + Knowledge Assets (Scientia) + B2B MarketPlaces
- It's a comprehensive ecosystem of key stakeholders from academia and industry (researchers, clinicians, experts, solution providers, vendors, suppliers) + data, knowledge, resources, best practices, novel molecular assets and technologies (not a comprehensive list)
- Atlantis AI360 MarketPlaces is an interchange mechanism that allows sharing of Knowledge Assets and use of intelligent systems to enhance R&D productivity to drive innovation

4) Do Atlantis AI360 MarketPlaces allow a mechanism for licensing and monetization of assets?

Atlantis AI360 will generate a full range of Knowledge Assets – from specialized reagents such as cell lines, antibodies and clones to experts (KOLs, PIs), to best practices and geomapping of research clusters to experimental therapies (small or large molecules, cellular or gene therapies, devices, digital Rx or other) being developed within academia or industry (or other institutions) to patient recruitment sites

- The Beacon graphical viewer will allow users to search for assets and engage in transactions which include licensing of NCEs/NBEs (as well as the range of assets listed above)

5) What is the value proposition for the user?

The value of Atlantis AI360 by functional area -

1. Translational medicine - Atlantis AI360 NLPac can conduct nth level iterations at the molecular level, taking concepts from each successive round of discovery to uncover connections by running multiple cycles of deep analysis and expanding the knowledge matter horizontally and vertically. The Atlantis AI360 hypothesis engine will create a visual knowledge map with reliability scores that users can leverage to test in the lab. This analysis is particularly useful for Translational Medicine experts involved in designing and executing strategies for patient selection and enrolment, MoA and biomarker assessments to enable forward and reverse translation through setting Go/No-Go criteria to increase the success of clinical stage assets. This is the model used in the industry incl., my own experience developing hypotheses from data generated by the Massively Parallel Signature Sequencing Platform at Dana-Farber/Harvard Cancer Center to decipher disease mechanisms in leukemia
2. Portfolio management - Atlantis AI360 will generate a comprehensive review of literature, point out competitive development programs by competitors, stages of development, time to market, alternate targets, MOAs, etc., that will guide development strategy, portfolio rationalization decisions; This is based on my work developing clinical trial intelligence platforms for Bayer Pharma's oncology pipeline
3. Clinical operations - Atlantis AI360 will map out sites for contracting with PIs and sites for patient recruitment; note biopharma companies compete for the same fixed set of patient populations and providing this insight is key to ensure on time start and completion of studies. This is based on my work building a POC for Quintiles (for Pfizer as the end client)
4. Medical affairs - This is an activity that is outsourced to external agencies and consultants and pharma spends millions on generating the knowledge needed for preparing manuscripts, building and maintaining disease, therapy area and product knowledge, as well as scientific and medical information compendia for HCPs (e.g., MOA, side effects, indications, contraindications, …) – Atlantis AI360 content generation will be catalytic in this area

Atlantis AI360 has applications across the biopharmaceutical R&D and commercialization value chain

5) What is the value proposition for the user?

The value of Atlantis AI360 by functional area -

- Corporate development - Atlantis AI360 Knowledge Assets and MarketPlaces will allow researchers across the biomedical R&D community to identify assets to advance their research endeavor as well as license and acquire novel molecular entities/experimental therapies or establish co-development alliances and partnerships
- BOD/SAB/CAB appointments - Atlantis AI360 will map geolocations of biomedical experts (KOLs, PIs). This is based on my merchant banking experience at Allele Capital, where assembling an all-star Scientific Advisory or Clinical Advisory Board is extremely important for biopharma companies

Atlantis AI360 has applications across the biopharmaceutical R&D and commercialization value chain

6) What is the overall vision of Atlantis AI360?

Atlantis AI360 will leverage this vast amount of data to generate a comprehensive repository of Knowledge Assets and make it available on MarketPlaces in a searchable and easy to use form via Beacon –

- *Where can I find an antibody to a certain target protein?*
- *Where can I get a clone for a particular gene?*
- *Who has that particular cell line? Breast cancer biospecimen?*
- *Who has an experimental therapy for the orphan kidney disease that I can license?*
- *Where can I access expertise and ensure I am using best practices in my research effort?*
- *Where can I recruit a KOL for my company?*
- *Where can I recruit a PI or a clinician to lead my next study?*
- *Where can I recruit patients for my upcoming trial?*

Notes: Personal experience – Identifying and recruiting scientific, medical and clinical thought leaders commonly known as KOLs (Key Opinion Leaders), TAEs (Therapy Area Experts) is an important function played by many investment bankers and VCs

These are just some of the questions that Atlantis AI360 will allow users to address through Beacon, the graphical search engine

Atlantis AI360 vs Google Scholar:: Search for “fxr in steatohepatitis”

Google Scholar

fxr steatohepatitis

Articles

About 51 results (**0.02** sec)

Any time
Since 2022
Since 2021
Since 2018
Custom range...

Sort by relevance
Sort by date

Any type
Review articles

include patents
include citations

Create alert

Articles added in the last year, sorted by date | Abstracts | Everything

Discovery of a tricyclic farnesoid X receptor agonist HEC96719, a clinical candidate for treatment of non-alcoholic steatohepatitis
S Cao, X Yang, Z Zhang, J Wu, B Chi, H Chen… - European Journal of …, 2021 - Elsevier
10 days ago - … activity of **FXR** by using the HEK293T cells co-transfected with human **FXR** encoding plasmid (pBIND-**FXR**) and **FXR**-responsive … In this assay, once the cells are treated with compound, **FXR** will bind to cis-acting element on **FXR**-luciferase plasmid, leading to a …
☆ Save Cite All 2 versions

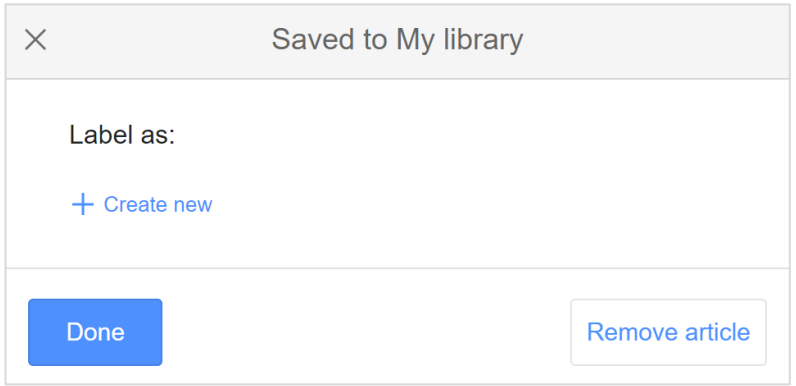
Targeting liver cell metabolism and function in non-alcoholic fatty liver disease
T Islam - 2021 - repositorio.ul.pt
26 days ago - … ranging from simple steatosis to non-alcoholic **steatohepatitis** (NASH) and is a major … NAFLD and NASH through targeting PPARα and **FXR**, respectively. This further justifies … We also sought to evaluate the therapeutic potential of **FXR** and TGR5 dual agonist INT…
☆ Save Cite

降糖消脂片改善代谢相关脂肪性肝病的作用机制研究
侯敏 - 2021 - cdmd.cnki.com.cn
28 days ago - … fatty liver”或“nonalcoholic **steatohepatitis**”或“**steatohepatitis**,nonalcoholic”或“simple fatty … PPARγ,PPARα及小鼠胆汁酸合成相关基因CYP7A1,**FXR**的蛋白表达情况.结果:1.获得了75个… -ERBα调节胆汁酸代谢相关蛋白CYP7A1和**FXR**,促进BA合成与转运,减轻肝脏TC的堆积. …
☆ Save Cite

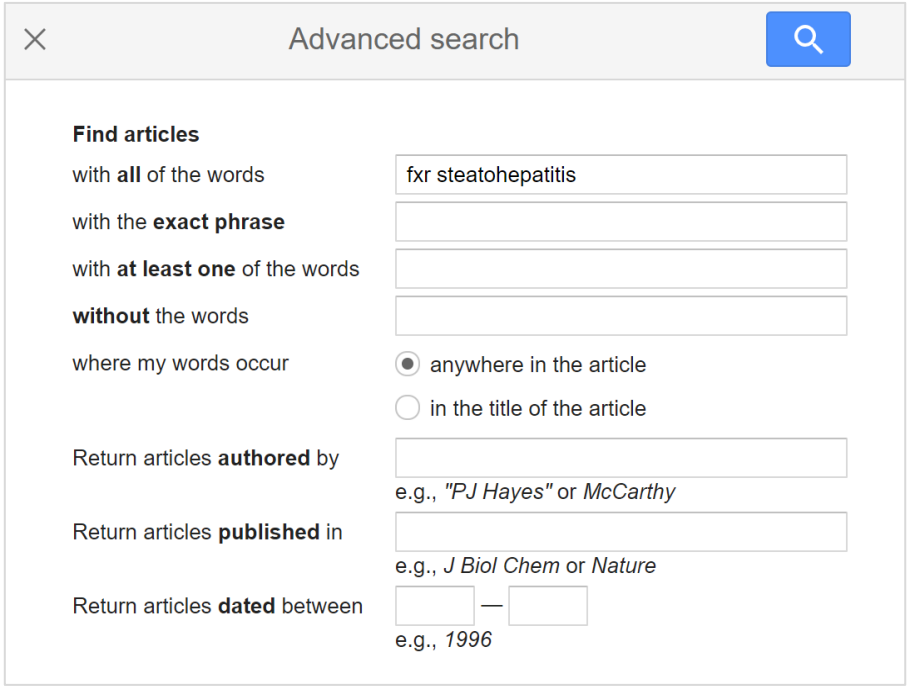
Recent Advances in the Medicinal Chemistry of Farnesoid X Receptor
Y Fang, L Hegazy, BN Finck… - Journal of medicinal …, 2021 - ACS Publications
30 days ago - … of the disease that are characterized by inflammation and fibrosis (nonalcoholic **steatohepatitis** (NASH)). NAFLD may affect 20–40% … of **FXR** agonists as therapeutics and are likely due to the direct activation of **FXR** rather than off target effects. Thus, designing **FXR** …
☆ Save Cite All 4 versions

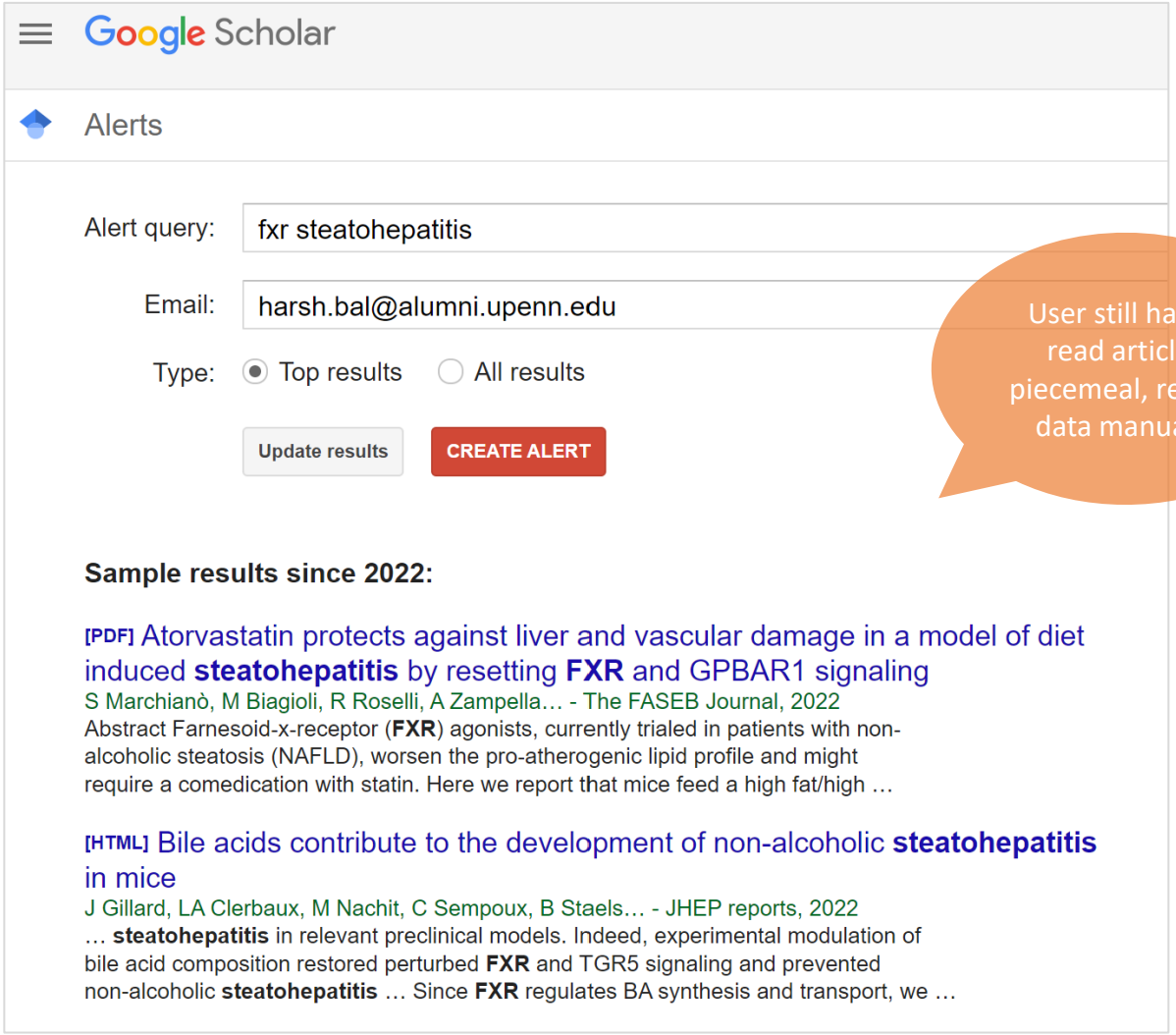
Atorvastatin protects against liver and vascular damage in a model of diet induced steatohepatitis by resetting FXR and GPBAR1 signaling
S Marchianò, M Biagioli, R Roselli… - The FASEB …, 2022 - Wiley Online Library
35 days ago - Abstract Farnesoid-x-receptor (**FXR**) agonists, currently trialed in patients with non-alcoholic steatosis (NAFLD), worsen the pro-atherogenic lipid profile and might require a comedication with statin. Here we report that mice feed a high fat/high cholesterol diet …
☆ Save Cite All 4 versions

Laundry list of articles that the user has to trawl through piecemeal



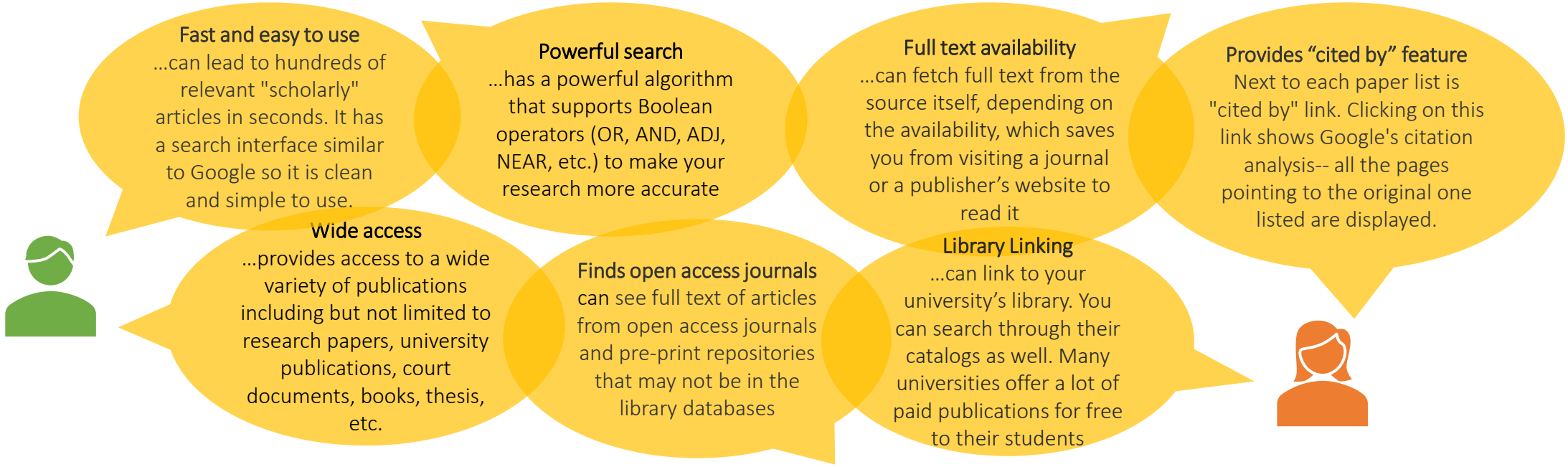
Google Scholar:: Advanced Search





User still has to read articles piecemeal, review data manually

Google Scholar:: Uses and Limitations



User is left to labor through the data in a manual piecemeal fashion

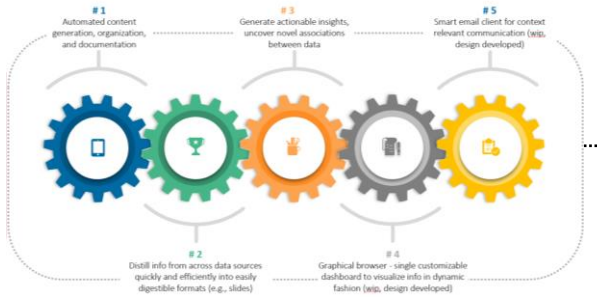
Google Scholar provides access to data... *BUT ACCESS TO DATA IS NOT THE PROBLEM!*

Analyses
Insights
Knowledge
Intelligence
Automation
Workflow
Ecosystem
MarketPlaces

Google Doesn't provide this

- https://www.greyb.com/google-scholar-search/
- https://libguides.merrimack.edu/GoogleScholar/StrengthsWeaknesses

Atlantis AI360:: A Complete Ecosystem for Life Sciences



Atlantis AI360 Platform

NLP Engine (Genie)

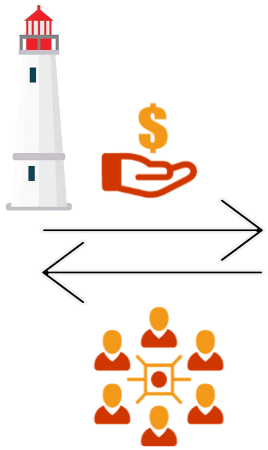
Atlantis AI360 Scientific & Business Knowledge Assets (Sampling)

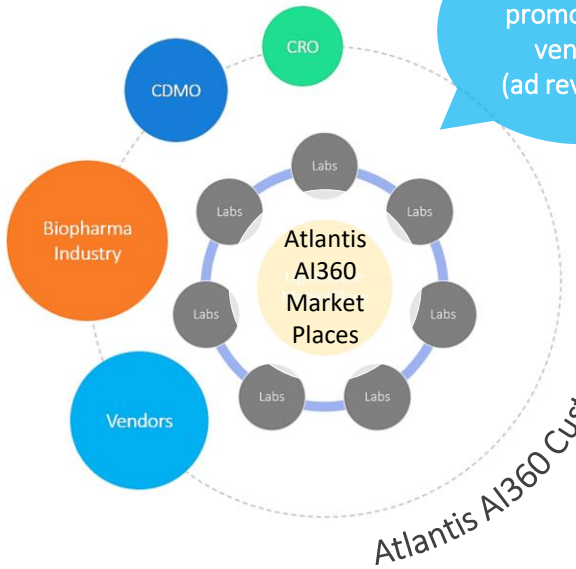
Biomed expertise (KOLs, PIs)	Scientific, clinical & medical insights	Best Practices, Protocols, Techniques
Reagents, Clones, Antibodies, Cell lines	Real World Data	Lab Geolocation Mapping
Experimental Therapies	Grants, Licensing, Alliances & Partnering	Patient Recruitment (clinical sites)

Deep mapping of of knowledge assets across academia & industry

Atlantis AI360 MarketPlaces

Atlantis AI360 MarketPlaces





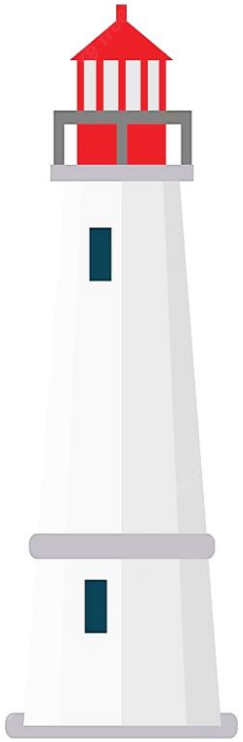
Contextual promos from vendors (ad revenues)

Atlantis AI360 Customers Ecosystem

Business CRM System of and for Life Scientists

Atlantis AI360 MarketPlaces will facilitate exchange and transaction of assets: reagents, protocols, data, know-how, best practices, experimental therapies and others (e.g., KOLs, PIs, clinical trials sites, patient recruitment, alliances and partnerships, …)

CONTACT



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