

OniX: Standardizing Global Preclinical Research for Accelerated Innovation

PARTNERING | FUNDING | INNOVATION | KNOWLEDGE | LICENSING | INVESTING

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In a world where the US, UK, and EU federal governments collectively spend over \$600 billion annually on R&D, the sheer volume of data generated daily is staggering. OniX stands at the forefront of harnessing this wealth of knowledge, serving as the premier research knowledge hub that standardizes preclinical data from universities, startups, biotech companies, accelerators, and incubators. By



aggregating both public and proprietary data, OniX empowers strategic R&D and business development activities, accelerating the path from innovation to market.

Biomedical R&D funding for Japan, South Korea, Singapore, China, India, Thailand, Indonesia, and Vietnam:

1. Japan:

- Total R&D Funding: Over \$32 billion USD in 2023.
- Biomedical Focus: Significant portion allocated to biomedical research, with major corporations and government initiatives driving the sector.

2. South Korea:

- Total R&D Funding: Approximately \$31.1 billion USD in 2023.
- Biomedical Sector: Around \$3.7 billion USD specifically for biomedical R&D, driven by both government and private sector investments.

3. Singapore:

- Total R&D Budget: SGD 25 billion (USD 18.5 billion) under the RIE2025 plan for five years.
- Annual Biomedical R&D: Significant portion of the annual \$3.7 billion USD

dedicated to biomedical sciences.

4. China:

- Biomedical R&D Funding: Approximately \$60 billion USD for the period between 2018 and 2019.
- Current Trends: Continued substantial investment in biopharma and biomedical sciences, supported by government and private capital.

5. India:

- Total R&D Expenditure: Around \$17.2 billion USD in 2020-2021.
- Biotechnology R&D: Roughly \$1 billion USD annually, with government and private sector contributions.

6. Thailand:

- Biomedical Investments: Specific investments include \$52 million USD for COVID-19 R&D and vaccine production as of 2020.
- Sector Support: Growth in biotech initiatives supported by government and private sector partnerships.

7. Indonesia:

- Total R&D Funding: Less than 0.1% of GDP, indicating relatively low investment.
- International Support: Partnerships and funding from international sources like the Newton Fund, totaling around \$3.9 million annually for research projects.

8. Vietnam:

- Overall R&D Budget: Estimated at \$1.5 billion annually for all R&D activities.
- Biomedical Focus: Enhanced by international collaborations and initiatives, though specific biomedical R&D figures are not well-documented.

Enhancing Discovery and Collaboration

OniX maximizes the impact of R&D efforts by leveraging new generative AI tools to identify cutting-edge technologies and innovations. Our platform enables users to:

- **Discover Technologies:** Identify promising technologies to license or invest in, ensuring that the latest advancements are within reach.
- **Collaborate:** Find collaboration opportunities that accelerate research and development, fostering a network of innovators.
- **Enhance Business Development:** Streamline partnering and licensing efforts to

bring new products to market more efficiently.

- **Strategize Competitor Activity:** Monitor competitors to inform strategic planning and maintain a competitive edge.
- **Track Emerging Startups:** Keep an eye on disruptive startups that could impact your market, staying ahead of trends.
- **Develop Insights:** Generate actionable insights across the product lifecycle, from initial research to market deployment.



Bridging the Knowledge Gap

OniX bridges the fragmented flow of ideas from discovery to market by creating an open and accessible platform. We believe that innovation thrives in a collaborative environment where ideas can be freely shared and developed. Our platform connects researchers, industry leaders, and investors, facilitating partnerships that propel innovation forward.

Unique Positioning for Innovation

OniX's unique positioning is built on:

- **Comprehensive Data Aggregation:** Curating a vast repository of global research data, providing unparalleled access to research ideas.
- **Advanced Search and Filtering:** Enabling precise identification of research that aligns with specific needs and objectives.
- **Informed Decision-Making:** Offering insights into emerging technologies and potential collaborations to guide strategic decisions.
- **Industry-Researcher Connectivity:** Bridging the gap between researchers and



industry leaders to accelerate technology transfer and market readiness.

Empowering Innovation and Shaping the Future

OniX is committed to transforming data into opportunities, connecting ideas, assets, and talent across the research universe. By fostering a collaborative ecosystem, we support the global innovation pipeline, helping to de-risk ongoing efforts and bringing much-needed medicines to market faster.

Join OniX on our journey to unlock the potential of global research ideas and drive innovation for a brighter tomorrow. With OniX, where global research ideas converge, we empower the future of innovation.

About the Online Ideas Exchange Hub

Connecting Ideas to Opportunities

OniX is the premier research knowledge hub supporting global innovation. Our platform aggregates public and proprietary data spanning the research ecosystem - from universities to industry.

With OniX, you can:

- Discover cutting-edge technologies to license or invest in
- Identify collaboration opportunities to accelerate R&D
- Enhance business development, partnering and licensing efforts
- Track competitor activity for strategic planning
- Monitor emerging startups disrupting your market
- Develop actionable insights across the product life cycle

We transform data into opportunities by connecting ideas, assets and talent across the research universe.

OniX Includes (as of 06/01/24):

- 1M+ ideas/assets
- 36M+ publications
- 700K+ clinical trials
- “Live” News
- 100K researchers
- 50+ countries
- 2K+ universities
- 80K+ startups/(bio)tech assets
- 9K+ startups/(bio)tech “live” pipelines

We Are Adding (weekly):

- 5K+ ideas/assets
- 1K+ publications
- 400+ startups/(bio)tech pipelines

OniX aggregates data from:

- **Ideas:** Global Government and Private Funding agencies, e.g., NIH, NSF, CIHR, MRC, JSPS, AMED, NHMRC, ACS, AHA, MJFF, Parkinson UK, BHA, and others; tech transfer, accelerators, incubators, research parks; intramural projects, funded and unfunded research projects
- **Publications:** PubMed
- **Patents:** Espacenet
- **Clinical Trials:** 200+ agencies
- **News:** Internet
- **Pipelines:** from startups, biotech and pharmaceutical companies

Generative AI streamlines asset discovery by automatically summarizing research abstracts, enabling researchers to quickly identify promising assets. (see below for an example and additional draft reports [here](#))

Abstract	OniX Summary with gAI
<p>Jab1-BMP signaling interaction in chondrocyte differentiation</p> <p>DESCRIPTION (provided by applicant): The goal of this project is to understand the interaction of Jab1 and BMP signaling during chondrocyte differentiation. BMP signaling is important for all aspects of cartilage and bone formation, bone healings, and joint and cartilage repair. BMP2- and BMP7-containing osteogenic implants have been used for bone regeneration in over one million patients worldwide in the treatment of long-bone nonunion and acute fracture and in spinal fusion. However, the clinical use of BMPs requires super-physiological doses, resulting in high cost and potential inflammatory side effects. Thus, improving BMP treatment efficacy is critical to ease physical pain and financial burdens on patients, their families, and or health system. Furthermore, mutations in BMP signaling components lead to severe human skeletal developmental defects. We have recently identified transcriptional cofactor Jab1 as a novel inhibitor of BMP signaling downstream effector Smad1/5. Jab1 plays essential roles during various developmental processes by modulating other transcription factors' function. Jab1 is broadly expressed during embryogenesis, including in the chondrocytes. However, the role of Jab1 in cartilage formation remains mostly unknown. In our preliminary study, the loss of Jab1 specifically in chondrocytes using the loxP/Cre system led to neonatal lethal chondrodysplasia in mice, demonstrating that Jab1 is essential for proper cartilage formation in vivo. Furthermore, gene expression profiling and ex vivo culture experiments with Jab1 deficient primary chondrocytes revealed increased expression of Smad1/5 and its downstream targets Ihh and Col10a1. Thus, we hypothesize that Jab1 regulates chondrocyte differentiation by directly repressing Smad1/5-mediated BMP signaling. In this study, we propose three specific aims to test this hypothesis. Aim 1 is to use complementary cellular and molecular approaches to delineate the underlying mechanism of Jab1-BMP signaling interaction in chondrocyte differentiation. Aim 2 is to determine the effect of the genetic manipulation of Jab1 expression (both gain- and loss-of-function), specifically in chondrocytes in an inducible manner, on BMP-mediated embryonic cartilage formation using histological and in situ analysis. Aim 3 is to use RNA-seq and ChIP-seq to investigate the direct Jab1 downstream targets in chondrocytes. Overall, this study will further our understanding of the essential role of Jab1 in BMP-mediated skeletal development and generate novel mutant mouse models for skeletal dysplasia research. Ultimately, new therapies based on controlling the Jab1-mediated inhibition of BMP signaling will open a new era in treating acute fracture, osteoarthritis, and the skeletal disorders associated with dys-regulated BMP signaling.</p>	<p>Research question: How does Jab1, a transcriptional cofactor, interact with BMP signaling during the process of chondrocyte differentiation (cartilage cell development)?</p> <p>Stage: Early investigation (uses in vitro and in vivo with animals)</p> <p>Methods:</p> <ul style="list-style-type: none"> Analyze the molecular mechanisms of Jab1-BMP interaction in chondrocytes (Aim 1). Use genetic engineering to manipulate Jab1 expression in chondrocytes and assess its effect on BMP-driven cartilage formation in developing embryos (Aim 2). Identify Jab1 target genes through RNA sequencing and chromatin immunoprecipitation sequencing (Aim 3). <p>Drug development: Not applicable (focuses on understanding a biological process)</p>