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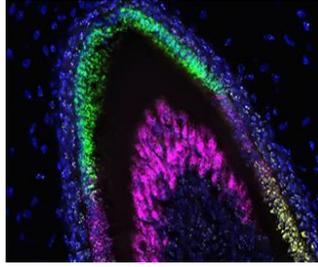
Dear Readers,

Welcome to **NewsEffect** –
August 2023

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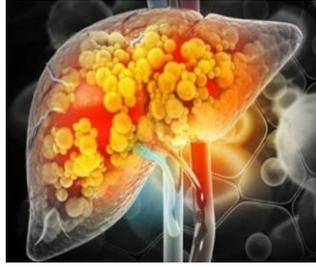
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Stem Cell Organoid



- [Organoids Market Witness Heightened Revenue of US\\$ 3,420.40 million by 2030 with Business Market Insights: DefiniGen, 3Dnatics, Inc., Merck KGaA, Cellesce Ltd.](#) The Organoids Market was valued at US\$ 689.47 million in 2022 and it is projected to reach US\$ 3,420.40 million by 2030; it is expected to grow at a CAGR of +22% from 2023 to 2030. **Organoids are tiny, self-organized three-dimensional tissue cultures that are derived from stem cells.** Organoids are microscopic and self-organizing 3D structures, which are grown from stem cells in vitro. They review various structural and functional characteristics of their in vivo counterpart organs. This multipurpose technology has led to the development of several novel human cancer models. Top Companies of Organoids Market:., STEMCELL Technologies, Inc., Cellesce Ltd., Hubrecht Organoid Technology, DefiniGen, 3Dnatics, Inc., Organoid Therapeutics, PeproTech, Inc., Thermo Fisher Scientific, Corning Incorporated (Life Sciences), Merck KGaA
- [Stem cells can help build lab-grown organs that mimic real life](#), lab-made organoids can help us better understand disease and find new drugs. Stem cells are cells that can change into any of many different specialized cells. One type of **stem cell is proving useful in making organoids. Known as human pluripotent (Ploor-ee-POH-tunt) stem cells**, these start out as normal body cells. Using tiny micropatterns made of proteins, Smith and colleagues pushed human induced pluripotent stem cells to organize into triangles, stars and circles. Cells tagged fluorescent green, mostly at the edges, make a protein important for building blood vessels.
- [Advancing Clinical Trials with iPSC-Derived Liver Organoids](#) AMSBIO has published a blog about Dr. Satoshi Okamoto's groundbreaking research on the production of induced pluripotent stem cells (iPSC)-derived liver organoids, and their significant potential in clinical research trials. The primary objective of **Dr. Okamoto's research program at the Yokohama City University Graduate School's Department of Regenerative Medicine** was to **achieve large-scale, stable production of clinical-grade liver organoids.** These organoids have the potential to revolutionize treatment for liver diseases and could be administered to patients with liver diseases as a therapeutic treatment.
- [Stem cell-derived organoids secrete tooth enamel proteins](#) Organoids have now been created from **stem cells to secrete the proteins that form dental enamel, the substance that protects teeth from damage and decay.** A multi-disciplinary team of scientists from the University of Washington in Seattle led this effort. The researchers explained that tooth enamel protects teeth from the mechanical stresses incurred by chewing and helps them resist decay. It is the hardest tissue in the human body. To do this they **used a technique called single-cell combinatorial indexing RNA sequencing (sci-RNA-seq)**, which reveals which genes are active at different stages of a cell's development.

Stem Cell Organoid (Contd.)



- [Human Lung Organoids Transform How We Study Respiratory Infections](#) A team of researchers led by Alexandre Persat at EPFL have now cracked the problem by successfully **developing organoids called AirGels**. Organoids are miniature, self-organized 3D tissues grown from stem cells to mimic actual body tissues and organs in the human body. They represent a paradigm shift in the field, enabling scientists to replicate and study the intricate environments of organs in the laboratory. Developed by Tamara Rossy and her colleagues, the AirGels are **bioengineered models of human lung tissue that open up new possibilities in infection research**. They revolutionize infection research by accurately emulating the physiological properties of the airway mucosa, including mucus secretion and ciliary beating. This technology allows scientists to study airway infections in a more realistic and comprehensive manner, bridging the gap between in vitro studies and clinical observations
- [Organoid Intelligence: Biology and the future of computing](#) The advantages of biological learning make OI a tempting notion to embrace, however, there are significant ethical and technological hurdles to overcome before we develop an OI biocomputer. In the last few years, Artificial Intelligence (AI) has rapidly redefined the capabilities of technology, but science is already pushing the boundaries of cognitive computing further. **Organoid Intelligence (OI) is an emerging multidisciplinary field that envisions novel biocomputing models using stem cell-derived brain organoids**. Organoids are small tissue cultures derived from stem cells to replicate part of a human organ's functioning. They have been used for various purposes such as disease modelling and drug testing, but researchers are now beginning to explore their potential for information processing.
- [Brain 'Organoid' Study Hints at the Origins of Autism](#) Research using three-dimensional replicas of the developing brain created in a lab dish is shedding new light on autism spectrum disorder. **Researchers collected stem cells from 13 boys diagnosed with autism to create the brain organoids**, which are lab-grown replicas of the developing brain that mimic neuronal growth in the fetus. **children with the same symptoms end up with two distinct forms of altered neural networks**,. **These findings may help identify autism cases** that would benefit from existing drugs used to reduce symptoms of other disorders that involve excessive excitatory neuron activity, such as epilepsy.
- [NICO Awards \\$75,000 Grant for Advanced Organoid Growth in Brain Tumor Research](#) Tomas Garzon-Muvdi, MD, MSc, assistant professor of Neurosurgery at Emory University School of Medicine, has been awarded a \$75,000 Investigator Initiated Study (IIS) grant from **NICO Corporation to evaluate potential increased efficiency of high-throughput organoid formation and cultures for brain tumor biology research and molecular diagnosis using NICO technologies**. The study is to determine tissue quality using an automated preservation system and the impact it has on our ability to create organoids for molecular research and advanced analyses

Disruptive Technology Leads



- [Meta's upcoming sunglasses could let users do livestreams on Instagram.](#) Meta and Ray-Ban could introduce a second pair of smart glasses later this year. As per a report, internal documents indicate that Ray-Ban will enable users to stream videos directly to Facebook and Instagram and allow viewers to whisper into their ears. Live streamers can communicate directly with their audience through glasses that relay comments via audio over built-in headphones.
- [WhatsApp to soon allow users to reply to status updates using avatars.](#) WhatsApp is working on a new feature which will enable users to reply to status updates using avatars. Since the user has only 8 emojis available with the regular reaction feature, they will be able to reply to a status update by choosing one from the available set of 8 avatars.
- [The NA900 has been certified to be compliant to ASIL D criteria of ISO 26262 standards for both systematic fault and random hardware faults,](#) according to Nuclei System Technology, a renowned RISC-V CPU IP vendor in China. The NA900 gains the ISO 26262 ASIL D product certification, making it the first RISC-V CPU IP in the world. According to ISO 26262-10, the NA900 processor has been created as a hardware SEoC. The development complies with the functional safety management requirements set forth in ISO 26262-2, the applicable ASIL D design standard, and the implementation and verification criteria of ISO 26262 parts 4,5,7,8,9 as directed by ISO 26262-10. The official assessment report states that NA900 satisfies ASIL D for both hardware safety integrity and systematic capacity. The first RISC-V CPU IP provider in the market is Nuclei.
- New technology developed to [transport of radio frequency \(RF\) through optical methods](#) RF, when modulated on a spectrally rich optical pulsed source, can be stretched in the optical domain through a dispersive medium, thus converting high-frequency RF signals into effectively low-frequency signals. This reduces the input bandwidth requirements of the back-end ADC as many times as the stretch factor of the optical pulse. This method could revolutionize many sectors, enabling faster digital communication, improved satellite communication, better medical imaging, and Photonic radars.
- [Alibaba launches two AI models:](#) Alibaba has launched two new artificial intelligence (AI) models that can carry out complex conversations and understand images. Other tasks that can be performed include writing stories, creating images based on photos that a user inputs and solving mathematical equations shown in a picture.
- [YouTube tests a new hum-to-search feature on android.](#) It allows the user to figure out a song on YouTube by humming, singing or recording a song. It identifies the tune and directs the user to relevant YouTube videos featuring the searched songs.
- [Autonomous labs of the future by Intersect:](#) Interconnected science ecosystem initiative or INTERSECT launched by the Department of Energy's Oak Ridge National Laboratory established six autonomous labs, each targeting high impact applications from fundamental discoveries in chemistry and quantum information science to advance techniques in electron microscopy, indicating science is moving in the direction of autonomous labs.

Disruptive Technology Leads (Contd.)



[How the Unique Attributes of Blockchain Technology Redefines Mechanical Engineering.](#)

In the annals of technological evolution, few innovations have stirred as much intrigue and transformation as blockchain. Emerging from the digital ether in 2008, it was introduced by the enigmatic figure, Satoshi Nakamoto, primarily as the backbone for Bitcoin, a decentralized digital currency. However, the underlying technology, blockchain, soon revealed its broader potential, promising to redefine the very fabric of financial systems. At its essence, blockchain is a distributed ledger, a database concurrently maintained across thousands of computers globally. This decentralized nature ensures that no single entity has overarching control, making the system inherently resistant to censorship and fraud.

[Google Is Rapidly Becoming A Healthcare Powerhouse.](#) For example, Google's Care Studio, which provides clinicians the ability to search and collate pertinent patient information through a centralized platform, has been celebrated as one of the most disruptive innovations for optimizing healthcare data. Congruently, Google Cloud has made its own strides with regards to data management. Its Healthcare Data Engine empowers unification of data sets to enable interoperability and accessibility, meaning that organizations can do more with their data now than ever before. The technology also enables novel capabilities such as insights into social determinants of health and patient throughput analytics.

[NewHydrogen Announces Disruptive Technology to Produce the World's Cheapest Green Hydrogen.](#) NewHydrogen, Inc. (OTC:NEWH), the developer of a disruptive technology that uses clean energy and water to produce the world's cheapest green hydrogen, announced that the Company recently entered into a research agreement with UC Santa Barbara to work with a team of world-class chemical and materials engineers to develop a better way to efficiently split water into cheap green hydrogen with a thermochemical approach, using heat instead of electricity.

[Construction technology: The big 3 disruptive tech in the industry.](#)

With the Big 3 encompassing disruptive tech such as Big Data, Digital Twins, and Drones, the construction industry needs to now stress on integration, implementation and skilled training for these technologies.

[Revolutionising agriculture in India: The impact of disruptive technology start-ups.](#)

Agriculture has long been the backbone of the Indian economy and provides livelihood to a large section of the population. But with the world becoming increasingly connected and technology advancing rapidly, agriculture in India is poised for major changes. Disruptive agricultural technologies (DATs) have the potential to change the way farmers work, increase yields, reduce waste, and improve production. In this article, we will explore the impact of DATs on agriculture in India, as well as the support and infrastructure needs for agtech start-ups in this space.

[Elon Musk's Vision for 'X': Disruptive Digital Payments with User Info Monetization.](#)

The enigmatic Elon Musk is once again poised to make waves in the tech and finance spheres, with reports hinting at a potential reimagining of digital payments. Rumors are swirling around Musk's brainchild, tentatively named "X," as industry insiders speculate about a fresh digital payment platform. This novel platform is rumored to integrate a "user info monetization" feature, suggesting a bold departure from conventional payment systems. The potential innovation comes as no surprise, given Musk's track record of disruptive ideas and ambitious undertakings.

Advancement in AI



• [Artificial Intelligence and Robotics in Transplant Surgery: Advancements and Future Directions.](#)

AI and robots have significantly improved transplant surgery, providing excellent outcomes in a variety of transplant-related processes. First, AI algorithms can examine a large quantity of patient data, including medical history, genetic variables, and donor features, to maximize organ matching in the selection and allocation of organs. As a result, informed judgments are made by transplant surgeons, increasing the likelihood of a successful transplant and lowering rejection rates. Moreover, robotic-assisted surgery has transformed the way transplant procedures are performed. With the improved dexterity, stability, and precision that robots offer, surgeons can carry out intricate tasks with more precision.

• [The Artificial Intelligence \(AI\) Odyssey: Redefining Travel and Tourism for Modern Explorers.](#)

As we embark on a new era of travel and tourism, AI continues to redefine the industry landscape. The integration of AI has revolutionized various aspects of travel, from budget planning and personalized itineraries to optimizing driving routes and enhancing accommodation choices. Through its data-driven and adaptive nature, AI has unlocked a realm of possibilities, enriching the travel experiences of millions worldwide. The future of travel and tourism lies at the intersection of AI and human ingenuity, where technology complements the human spirit of wanderlust, creating a harmonious and seamless travel experience for all.

• [Artificial intelligence can now estimate rice yields.](#)

Recent advancements in artificial intelligence and machine learning, particularly deep learning with convolutional neural networks (CNNs), offer promising solutions here. To explore the scope of this new technology, researchers from Japan conducted a study focusing on rice. They used ground-based digital images taken at harvesting stage of the crop, combined with CNNs, to estimate rice yield.

• [How Will Advances In Machine Learning And Artificial Intelligence Change The Way We Interact With Computer.](#)

Machine learning and artificial intelligence (AI) are revolutionizing the way we interact with computers. These technologies are enabling computers to become more intelligent, adaptive, and capable of learning from our interactions with them. They have already made significant strides in various applications, such as voice-activated assistants, chatbots, and recommendation systems. In this response, we will delve into the topic of machine learning and AI, exploring their transformative impact on human-computer interaction and the ways they are reshaping our digital experiences.

• [Artificial intelligence \(AI\) is just getting started revolutionizing manufacturing.](#)

By processing and analyzing vast datasets, AI/ML algorithms help to derive analytical models that describe the historical behavior of the system under changing environments and determine the best possible action to take for manufacturers to improve asset availability, optimize operations, enhance quality control and reduce energy usage.

• [Advancements in AI Enable Brain-Injury Patients to Have Fluent Conversations.](#)

In a groundbreaking clinical trial, researchers have demonstrated how artificial intelligence (AI) can help individuals with brain injuries have more fluent conversations. The trial participant, Ann, who has been diagnosed with locked-in syndrome, was able to hold a conversation with her husband for the first time in 18 years. Previously, Ann relied on devices that required her to spell out each word with eye movements. However, with the help of AI, phrases that Ann thinks can now be spoken in her own voice by an online avatar.

IP News



- [Two PAU experts granted patent for bioethanol production from damaged wheat.](#) A Punjab Agricultural University (PAU) microbiologist and a PhD (microbiology) pass out from the department of microbiology of the university have been granted the patent for "A process for bioethanol production from industrial graded wheat grains using an alpha-amylase" by the Indian Patent Office, government of India, New Delhi.
- [Ericsson, Huawei renew cross-licensing patent agreement.](#) Ericsson said Friday that the agreement covers the companies' respective sales of network infrastructure and consumer devices, "granting both parties global access to each other's patented, standardized technologies."
- [ASEAN Intellectual Property Register to officially launch.](#) ASEAN, in collaboration with the World Intellectual Property Organization (WIPO), launched the ASEAN Intellectual Property (IP) Register. Powered by a sophisticated information exchange system, the ASEAN IP Register is a one-stop IP information portal that will incorporate up-to-date IP data from all ten ASEAN Member States maintained by WIPO. It will provide a single portal to access complete sets of ASEAN IP data for all stakeholders to conduct patent, trademark and design searches seamlessly.
- [Ericsson sees IPR licensing revenues of \\$1 billion this year](#) Sweden's Ericsson predicted on Friday intellectual property rights (IPR) licensing income of 11 billion Swedish crowns (\$1 billion) this year after it renewed a patent cross-licensing agreement with China's Huawei. "With the current portfolio of IPR licensing contracts, Ericsson estimates the full-year 2023 IPR licensing revenues to be approximately 11 billion crowns," the company said in a statement.
- [Green Intellectual Property and Automobile Sector.](#) In recent years, the world has witnessed an increased focus on sustainability and environmental consciousness. The automobile sector, being a significant contributor to carbon emissions and environmental degradation, has faced mounting pressure to adopt greener technologies. As a response to this demand, the concept of green intellectual property (IP) has emerged as a catalyst for driving sustainable innovation in the automotive industry. Green IP refers to the protection and utilization of intellectual property rights to promote environmentally friendly technologies, products, and processes.
- [IP valuation rules in works to boost funding; startups, MSMEs to benefit.](#) India is eyeing a valuation framework for intellectual property to facilitate its financing through newer financial instruments. The Department for Promotion of Industry and Internal Trade (DPIIT) is planning to devise a system of valuation of IP as an intangible asset, a move that will aid businesses especially micro, small and medium enterprises and startups with valuable IP and seeking alternative sources of raising capital.
- [Semiconductor Intellectual Property \(IP\) Market Size Report 2028.](#) IMARC Group, a leading market research company, has recently releases report titled "Semiconductor Intellectual Property (IP) Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028" The study provides a detailed analysis of the industry, including the global semiconductor intellectual property (IP) market share, size, trends, and growth forecasts The global semiconductor intellectual property (IP) market size reached US\$ 5.3 Billion in 2022. Looking forward, IMARC Group expects the market to reach US\$ 7.3 Billion by 2028, exhibiting a growth rate (CAGR) of 4.3% during 2023-2028.

IP News (Contd.)



• [Latest AI models collides with copyright law.](#) Concerns over AI technology inadvertently colliding with copyright laws has been on the spiral as many artist for instance cartoonist Sarah Anderson and illustrator Karla Ortiz have filed a lawsuit against Stability AI, an online art community with it's own generator Dreamup. Since AI collects data, texts, video, and audio files, all scrapped from the internet. Contents can be created within second which sometimes have resemblance with the work of people, ending up infringing copyrights laws.

• [Apple gets Face ID for MacBook patented](#) MacBook laptops are going to change as the company has been granted a new patent that suggests Face ID in MacBook devices. The patent application talks about installing a light recognition setup in a laptop in a display notch. As explained in the patent, the module will come equipped with a light emitter that emits a pattern of light to detect a pattern caused by light reflection from the object in the view which in this case will be the user who is using the laptop.

• [Leading cognitive artificial intelligence \("AI"\) business Xiao-I Corporation \(NASDAQ: AIXI\) \("Xiao-I" or the "Company"\)](#) has proven its expertise in the field by actively contributing to the development of the annual China AI Industry Intellectual Property ("IP") Rights White Paper (the "White Paper"). The White Paper provides comprehensive analyses of AI-related IP rights, explicit descriptions of AI technology and categorization criteria, and concrete steps for IP right protection. Within the fundamental, perceptual-cognitive, and industry application levels of AI, it places a strong emphasis on patent analysis. The White Paper offers a thorough overview of AI's evolution within the industry ecosystem by assessing technology developments and patent landscapes from different perspectives.

• [On its official website, Huawei declared that it had signed a patent licence deal with Quality Tech S.R.L.](#) According to the agreement, Quality Tech and its clients will receive a licence to use Huawei's patents for optical distribution network (ODN) products in exchange for fair fees. According to Huawei, this is the first patent licence arrangement with a company from Latin America. Wu Zhijian, Huawei's Head of Americas Intellectual Property Rights Department, stated that the company "owns a variety of patents relating to fast ODN deployment, which can improve service provisioning efficiency and reduce the total cost of ownership (TCO) by 15-30% during ODN deployment."

• [The LYCRA Company, a leader in sustainable fibre and technology solutions for the garment and personal care industries, has started a campaign to support the intellectual property rights of the LYCRA® FitSense technology.](#) This method uses an aqueous LYCRA® polymer dispersion that may be printed on to give fabrics localized power augmentation for the purposes of shaping and compression. This printable LYCRA® technology has been well received by both domestic Chinese and foreign labels, and it enjoys strong trademark protection.

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