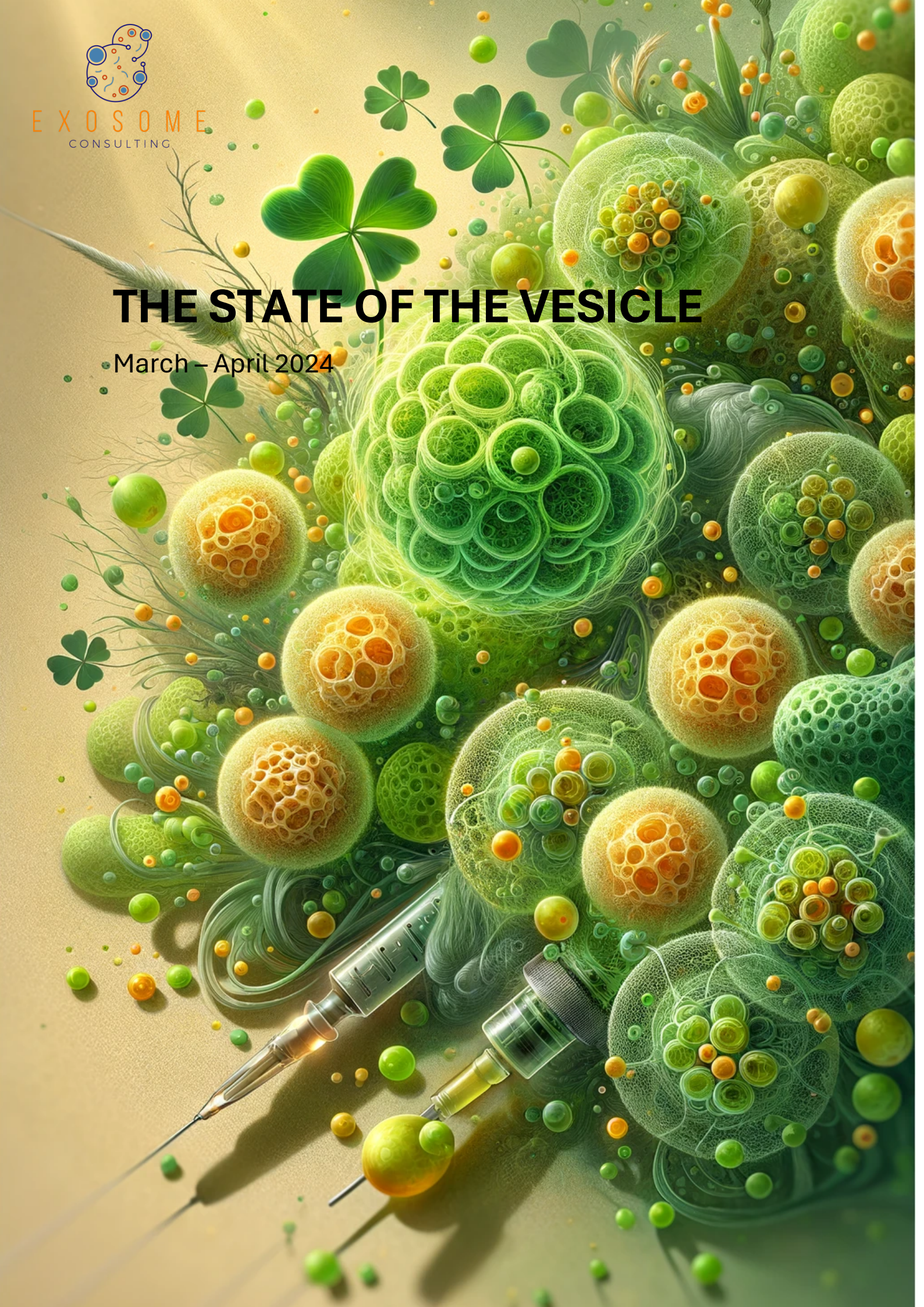
EXOSOME
CONSULTING

# THE STATE OF THE VESICLE

March – April 2024



## Foreword

Over March and April, the extracellular vesicle sector witnessed additional losses and generally underperformance relative to the broader biotechnology landscape, with very few exceptions. While global biotech continues to attract significant interest and capital, as evidenced by the top 10 M&A deals in 2023 totaling over $110 billion, EV-focused companies have struggled to secure pivotal partnerships and investments. This contrast is particularly stark as AI and advanced digital transformation continue to catalyze innovation across the broader biotech sector. The challenges specific to the EV field, including the complexity of developing practical applications and scalable therapies, have impeded progress. Although the sector promises significant medical advancements, the practical application and commercial scalability of EV technologies have not met initial expectations, deterring potential investors and leading to a competitive disadvantage.

However, there remains strong interest in the investor and big pharma communities. Securing strategic partnerships is essential for vesicle-oriented companies to effectively leverage their innovative potential. Both investors and big pharma are crucial for lasting success, but they require slightly different approaches: while investors can often be satisfied with a bold idea supported by preclinical data, big pharma requires strong results from clinical validation, such as meeting primary endpoints in Phase I and especially Phase II trials. Moreover, both expect a extremely high degree of transparency about the company's data and experimental details to ensure that information asymmetry during deal making is minimized. Failure to consider these factors might result in short-term success but lost long-term opportunities.

Despite the inherent potential of EV technologies, their successful commercialization will require a concerted effort to overcome existing barriers, align with industry expectations, and adopt a paradigm shift in how early data is presented to the wider community. Without these adjustments, the extracellular vesicle sector risks further erosion of its commercial foundation, serving as a cautionary tale for emerging biotech industries about the balance between innovation and market viability.

The Exosome Consulting Team.

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## COMPANIES MENTIONED

# Industry

– **Nexotech** and **Nucleus Biotech** have entered into an agreement to enhance the distribution of *ExoGAG* across Germany, Switzerland, and Austria. ExoGAG is a patented method that significantly improves the isolation of exosomes from liquid biopsy samples, aiding oncologists in the diagnosis and monitoring of patients. This technology simplifies the extraction process, reducing contamination and cost, and is scalable for broader application in biomarker research. This partnership is expected to extend the reach and application of ExoGAG, potentially advancing cell and molecular biology studies in the region. Press release

– **Capricor Therapeutics** announced positive outcomes from a Type-B meeting with the FDA concerning their CAP-1002 program for treating Duchenne Muscular Dystrophy. The FDA aligned with Capricor on using the San Diego manufacturing facility immediately and discussed a rolling Biologics License Application (BLA) submission strategy. This agreement could accelerate CAP-1002's regulatory pathway, emphasizing its promise based on extensive safety and efficacy data. Webcast recording can be accessed here. Data presented at the 2024 Muscular Dystrophy Association Clinical & Scientific Conference, sharing positive 24-month results from their HOPE-2 open-label extension study of CAP-1002 in treating Duchenne muscular dystrophy (DMD). The study highlighted CAP-1002's potential in slowing disease progression and improving muscle function and cardiac health. The average rate of decline in CAP-1002 treated patients showed an attenuation of disease progression by approximately 64%. CAP-1002 revealed clinically meaningful improvements in ameliorating cardiac function. Cardiac function as measured by left ventricular ejection fraction (LVEF%) by MRI at the 24-month timepoint, improved in 67% of patients, compared to a steady decline in a comparable natural history population. This presentation underscored the long-term benefits and ongoing safety of CAP-1002, with discussions planned for expedited FDA approval pathways based on these findings. Press release

– Another corporate loss in the exosome therapeutic space. **Tryp Therapeutics Inc.** has completed the acquisition of **Exopharm Limited** in a reverse merger transaction. The deal, valued at CAD 12.8 million, involved Exopharm acquiring all outstanding Tryp shares in exchange for its ordinary shares, following an amended share ratio and a share consolidation adjustment. The newly formed entity will be renamed **Tryptamine Therapeutics Australia Limited** and plans to relist on the Australian Securities Exchange. This strategic move involves Exopharm changing its name to Tryp and refocusing on research and development related to therapeutic dosing of synthetic psilocybin and IV-infused psilocin in conjunction with psychotherapy. The rebranded entity, to be known as Tryptamine Therapeutics Limited, aims to leverage this merger to enhance access to capital and address neuropsychiatric disorders innovatively.

Press release

– In another corporate setback within the exosome therapeutic sector, **ReNeuron Group plc** has appointed administrators. This decision, aimed at protecting creditor interests, follows challenges in securing further financing or mergers. Despite ongoing negotiations to

salvage the company through potential corporate actions, there's no guarantee of success. Shares remain suspended, highlighting the precarious position of the company. Press release

After entering administration, **ReNeuron Group plc** has entered administration, appointing Stephen Cork and Mark Smith from Cork Gully LLP as joint administrators. This step aims to protect creditor interests amid ongoing efforts to secure new financing or explore merger and acquisition opportunities. Despite these efforts, there is no assurance of a positive outcome. ReNeuron's shares remain suspended from trading on AIM as the company continues negotiations. Company also announced the resignation of John Hawkins as Chief Financial Officer, effective May 7, 2024. Despite his departure, Hawkins will continue to assist during the company's ongoing administration process. Iain Ross, the Executive Chairman, has expressed gratitude for Hawkins' contributions and wished him success in future endeavors. Press release

– **NurExone Biologic Inc.** recently presented at a global summit, showcasing novel regulatory pathways for exosome therapies. The company highlighted their innovative approaches to advancing these therapies, emphasizing the potential benefits and impact on the medical and biotechnological fields. This presentation aligns with NuRexone's ongoing efforts to navigate complex regulatory landscapes and foster advancements in treatment options using exosomes. Press release

Also, the company reported a significant reduction in its annual net loss for the year ended December 31, 2023, totaling USD 3.64 million, improved from USD 8.17 million the previous year. The basic loss per share also decreased to USD 0.081 from USD 0.216. Press release

Finally, the company has entered into an agreement with Vivox Ltd. to conduct large-scale preclinical testing for its ExoPTEN therapy, aimed at treating spinal cord injuries. This move prepares NurExone for expected human clinical trials, as the results will support an Investigational New Drug (IND) application with the FDA. Press release

– **VivaZome Therapeutics** and **La Trobe University** have announced a collaboration to develop extracellular vesicle therapy for stroke treatment. This partnership will explore the therapy's potential in models of stroke, leveraging VivaZome's expertise in EV manufacturing and La Trobe's research capabilities. The project, supported by a $300k grant, aims to address the complex mechanisms involved in post-stroke brain injury by using anti-inflammatory exosomes. Press release

– **INOVIQ** has expanded its exosome intellectual property with a new Australian Provisional Patent Application for its EXO-ACE technology. This technology enhances the large-scale isolation of exosomes from immune cells, achieving over 80% recovery and 95% purity. These exosomes are part of INOVIQ's therapeutic program targeting cancer through cell-free methods derived from engineered CAR-T and CAR-NK cells. The patent supports INOVIQ's leadership in developing next-generation exosome diagnostics and therapies.

Press release

– **Kytopen Corp.** has initiated the Flowfect® Technology Access Program (TAP), enhancing

the development of extracellular vesicle therapies, particularly for mesenchymal stem/stromal cell (MSC) derived exosomes. The program features the Flowfect Tx™ manufacturing system and a skilled applications team, focusing on transitioning therapeutics from concept through to scalable manufacturing. This effort is supported by Kytopen's expansion of its process development team and recent funding to accelerate non-viral therapy advancements.

Press release

– **Memel Biotech** has launched a new advanced therapy medicinal product (ATMP) manufacturing service in Klaipeda, Lithuania. This facility aims to provide comprehensive services from discovery to commercial production, targeting cell, gene, and tissue-engineered therapies. The service is designed to support both emerging and established biotech companies entering the ATMP space and complies with EU good manufacturing practice (GMP) standards. This initiative leverages Lithuania's strategic location and skilled workforce to facilitate access to both European and global markets. Press release

– **NeuroSense Therapeutics** has partnered with Lonza to develop and optimize methods for identifying exosome-based biomarkers, specifically from neuron-derived exosomes (NDEs). This collaboration aims to advance treatments and diagnostics for neurodegenerative diseases like ALS. Lonza will utilize its extensive expertise in exosome technology to support NeuroSense's development program for their ALS treatment candidate, PrimeC, enhancing early diagnosis and treatment approaches. Press release

– **EXO Biologics**, based in Belgium, has successfully raised €16M in Series A funding to further its development of exosome-based therapies. The company plans to use these funds to advance clinical trials and expand manufacturing capabilities of its ExoPulse platform, enhancing the production of clinical-grade exosomes. This financial backing will support the EVENEW clinical trial and other projects aimed at treating rare diseases with unmet medical needs using MSC-derived exosomes. Press release

# Research

There were 802 publications for extracellular vesicles and/or exosomes in March and 800 publications for extracellular vesicles and/or exosomes in April. Note: some publications can be behind a paywall.

## Retractions:

Guo, Z, Zhao, Z, Yang, C, Song, C, "Transfer of microRNA-221 from mesenchymal stem cell-derived extracellular vesicles inhibits atherosclerotic plaque formation", Transl Res 2020 Dec. 226:83-95. Link

## Corrections:

Castelli et al., "Extracellular Vesicle Formation in Cryptococcus deuterogattii Impacts Fungal Virulence and Requires the NOP16 Gene": Link

Zhang et al., "Correction: Immunoassay-aptasensor for the determination of tumor-derived exosomes based on the combination of magnetic nanoparticles and hybridization chain reaction": Link

Ma et al., "Correction to "Functionalized 3D Hydroxyapatite Scaffold by Fusion Peptides-Mediated Small Extracellular Vesicles of Stem Cells for Bone Tissue Regeneration": Link

Mazzarella et al., "Extracellular vesicles-coupled miRNAs from oviduct and uterus modulate signaling pathways related to lipid metabolism and bovine early embryo development": Link

Yuhua Gao et al., "Transfer of inflammatory mitochondria via extracellular vesicles from M1 macrophages induces ferroptosis of pancreatic beta cells in acute pancreatitis": Link

Bertolino et al., "Therapeutic potential in rheumatic diseases of extracellular vesicles derived from mesenchymal stromal cells": Link

Virla et al., "Administration of adipose-derived stem cells extracellular vesicles in a murine model of spinal muscular atrophy: effects of a new potential therapeutic strategy": Link

## Highlights:

**Hollow nanospheres as potential reference particles for extracellular vesicles:** A study by National Metrology Institute (PTB, Germany) and European partners introduced hollow nanospheres as innovative reference particles, aimed at improving the accuracy of extracellular vesicle measurements in medical diagnostics. These particles mimic the optical properties of vesicles, facilitating more precise calibration of instruments like flow cytometers. This advancement could greatly enhance diagnostic capabilities for diseases where EVs are biomarkers. Link

**Innovative Technique for Longitudinal Sampling in Rats Without Repeated Anesthesia:** A study detailed in Scientific Reports presents a novel method that allows for repeated blood and cerebrospinal fluid

sampling from individual rats over extended periods without the need for recurrent anesthesia. This innovative technique utilizes a specially designed port system that maintains catheter patency, significantly reducing the stress on animals and minimizing handling issues. Link

**Brain Iron Dysregulation in Restless Leg Syndrome and Iron Deficiency Anemia:** This case-control study explores brain iron dysregulation in restless leg syndrome (RLS) related to iron deficiency anemia. The research, which involved 71 women, 36 with RLS and 35 without, indicated that those with RLS exhibited higher levels of ferritin in neuron-derived extracellular vesicles (NDEVs), and a decreased transferrin receptor, suggesting impaired neuronal iron uptake. Link

**Crosstalk Between Exosomes and Ferroptosis: A Comprehensive Review:** Small extracellular vesicles, are shown to influence ferroptosis—an iron-dependent cell death—by modulating iron, lipid, and amino acid metabolism. Understanding these interactions provides new insights into the pathophysiology of diseases and potential therapeutic strategies involving the regulation of ferroptosis. Link

**Extracellular Vesicle-Encapsulated Homer1a as Novel Nanotherapeutics Against Intracerebral Hemorrhage:** Study, published in the Journal of Neuroinflammation, investigates the potential of neuron-derived extracellular vesicles (NDEVs) loaded with Homer1a for treating intracerebral hemorrhage (ICH) in mice. Findings suggest that Homer1a+ EVs can modify astrocyte behavior, reduce inflammation, and improve neurological outcomes by modulating the RAGE/NF-κB/IL-17 signaling pathway. This approach demonstrates a promising avenue for developing targeted therapies for acute ICH. Link

**Enhanced Plant-Derived Vesicles for Nucleotide Delivery in Cancer Therapy:** This study, published in Precision Oncology, explores the use of plant-derived vesicles (PDVs) for efficient delivery of small RNAs (miRNAs and siRNAs) for cancer therapy. The researchers developed a novel system using watermelon-derived PDVs complexed with a dendrimer to enhance RNA delivery into the tumor microenvironment. This approach demonstrated significant potential in overcoming the limitations of existing carriers by improving bioavailability, loading, and transport across biological barriers. Link

**Advances in Engineered Macrophages: A New Frontier in Cancer Immunotherapy:** This review in Cell Death & Disease explores the emerging role of engineered macrophages in cancer immunotherapy. It discusses the use of macrophages engineered with drug delivery systems, chimeric antigen receptor (CAR) technology, and synergistic treatments involving bacterial vesicles. These approaches aim to improve the efficacy of immunotherapies against solid tumors, particularly those resistant to conventional therapies. Link

**Paintable Bioactive Extracellular Vesicle Ink for Wound Healing:** Researchers developed a novel extracellular vesicle (EV) ink, named portable bioactive ink for tissue healing (PAINT), for cutaneous wound treatment. This bioactive ink combines M2 macrophage-derived EVs with a sodium alginate precursor to form a

biocompatible gel that rapidly adheres to wounds, matching diverse shapes and sizes. The PAINT technology reprograms macrophage polarization, enhances endothelial cell angiogenesis, and significantly accelerates wound healing, showing great promise for advanced wound care applications. Link

**Neuroprotective Effects of Small Extracellular Vesicles in Stroke:** Publication in Nanoscale have demonstrated that small extracellular vesicles delivered directly to the brain can significantly promote neuroprotection and reduce microglia reactivity in a stroke mouse model. These vesicles, sourced from mononuclear cells, were notably more effective than those from mesenchymal stem cells in mitigating inflammation and aiding neuronal recovery post-stroke. Link

**Distinct Proteomic Cargo in Bacterial Extracellular Vesicles and Inflammatory Response Induction:** Researchers have demonstrated that extracellular vesicles (EVs) from Gardnerella vaginalis and Mobiluncus mulieris contain unique proteomic cargoes and induce specific inflammatory pathways. These bacterial EVs interact with host cells differently, influencing cytokine responses and potentially contributing to conditions like bacterial vaginosis and other reproductive health issues. This study highlights the significant role of bacterial EVs in modulating host immune responses and their potential implications in microbial pathogenesis. Link

**Extracellular Vesicles Enhance Renal Recovery Post-Ischemia:** A study published in Scientific Reports explores the therapeutic potential of extracellular vesicles from mesenchymal stem cells in treating renal ischemia-reperfusion injury. These vesicles deliver miR-100-5p, targeting the FKBP5/AKT axis to reduce cell apoptosis and promote renal recovery. This approach highlights a promising avenue for developing non-invasive treatments for acute kidney injuries. Link

**Benchmarking Deconvolution Methods for EV Transcriptomics:** This study assesses various deconvolution methods to estimate tissue- and cell-specific extracellular vesicle (EV) abundances from body fluids. By analyzing data from cell lines, human plasma, and urine EVs, the researchers showed that algorithms like DWLS and CIBERSORTx can accurately predict EV origins. These findings enhance our understanding of EV biology and support the integration of biological knowledge in deconvolution processes. Link

**Proteomic Insights into Cancer Cachexia:** This study explores the differences in secreted proteins and small extracellular vesicles from cachexia-inducing and non-inducing cancer cells. Using label-free quantitative proteomics, significant variations in protein cargoes related to muscle atrophy, lipolysis, and inflammation were identified. These findings provide crucial insights into the molecular mechanisms driving cancer cachexia and may help identify potential therapeutic targets and biomarkers for this condition. Link

**Soluble Frizzled-related Proteins and Exosome-mediated Wnt Re-secretion:** This study, published in Communications Biology, examines how soluble Frizzled-related proteins (sFRP1 and sFRP2) enhance the re-secretion of Wnt proteins via exosomes. The research demonstrates that sFRP2, in particular,

facilitates the attachment of Wnt proteins to cell surface heparan sulfate proteoglycans, promoting their endocytosis and subsequent exosomal release. This coordination suggests a novel mechanism for regulating the spatial activity of Wnt proteins, important for cellular communication and developmental processes. Link

**Lipid Profile as a Predictor for Fetal Growth Restriction in Pregnancy:** Researchers analyzed the lipid profiles of placental extracellular vesicles in the bloodstream of pregnant women using MS/MSALL shotgun lipidomics. They identified specific lipid signatures predictive of small-for-gestational age infants, particularly during early gestation. This innovative approach offers a potential screening method to identify pregnancies at high risk for SGA, thereby enhancing early intervention opportunities. The study highlights how lipidomic biomarkers can address critical gaps in prenatal care by predicting fetal growth issues before they manifest clinically. Link

**Role of Epicardial Adipose-Tissue-Derived Extracellular Vesicles in Cardiovascular Diseases:** Epicardial adipose tissue, located between the myocardium and the epicardium, plays a crucial role in cardiovascular diseases through systemic inflammation. This study focuses on the extracellular vesicles derived from epicardial adipose tissue, which are involved in the pathogenesis of various heart conditions, including ischemia, atherosclerosis, and heart failure. By exploring these vesicles, researchers aim to better understand the mechanisms linking epicardial adipose tissue to cardiovascular disease progression. Link

**Extracellular Vesicles and Musculoskeletal Health:** This review emphasizes the importance of extracellular vesicles in musculoskeletal health and diseases. Highlighting recent findings, it explains how extracellular vesicles mediate crucial bone-muscle interactions by transferring proteins and microRNAs between cells. The potential therapeutic roles of extracellular vesicles are discussed, suggesting they could serve as biomarkers for musculoskeletal conditions and possibly offer new treatment avenues. Link

**Innovative Sampling Technique Enhances Neurological Studies:** A novel method developed for repeated sampling of blood and cerebrospinal fluid in rats without the need for repeated anesthesia involves the use of a jugular and cisterna magna catheterization via a port system. This technique allows for less invasive, continuous sample collection over an extended period, enhancing the quality of data for neurological research by reducing animal stress and procedural complications. Link

**Novel DNA Nanogear Sensor for Glioma Analysis via Exosomes:** Researchers have developed an innovative DNA nanogear sensor for detecting and analyzing tumor-derived exosomes from gliomas at extremely low concentrations. Utilizing super spherical nucleic acids with dual aptamers for high specificity and sensitivity, this method can identify as few as 20 particles per microliter. This approach promises significant advancements in non-invasive cancer diagnostics, showcasing potential for early glioma detection and grading based on exosome analysis. Link

**Extracellular Vesicles as Biomarkers for Hepatocellular Carcinoma Diagnosis and Recurrence:** A study in Scientific Reports highlights the potential of extracellular vesicles as biomarkers for diagnosing and monitoring hepatocellular carcinoma. The research focuses on surface protein dynamics of extracellular vesicles in hepatocellular carcinoma patients, demonstrating significant changes that correlate with tumor recurrence. This finding suggests that extracellular vesicles could be valuable for non-invasive cancer diagnostics and in predicting hepatocellular carcinoma recurrence. Link

**Advanced Diagnostic Technique for Early Lung Cancer Detection:** Machine learning-based exosome profiling of multi-receptor SERS sensors is being used to differentiate adenocarcinoma in situ from early-stage invasive adenocarcinoma. This novel method employs a stable, uniform SERS substrate combined with dual aptamers to enhance detection capabilities, achieving high sensitivity and specificity. This approach represents a significant advancement in early lung cancer detection. Link

**Evaluating Extracellular Vesicle Extraction Methods:** This study analyzes various extraction methods for extracellular vesicles from plasma and cell supernatant, comparing their effectiveness in terms of yield, purity, and protein expression profiles. Techniques such as ultracentrifugation, size-exclusion chromatography, centrifugal filtration, and acousto-sorting are evaluated, revealing significant differences in performance influenced by the choice of plasma preservation agents. The findings underscore the importance of selecting appropriate pre-processing methods to optimize extracellular vesicles extraction for clinical diagnostics. Link

**Reciprocal miRNA Communication in Muscle Regeneration:** This study explores the reciprocal exchange of miRNAs via extracellular vesicles between fibroadipogenic progenitors (FAPs) and muscle cells during muscle regeneration. FAPs release EVs with miR-127-3p that promotes myogenesis in muscle stem cells, while muscle cells emit EVs containing miR-206-3p and miR-27a/b-3p that inhibit FAPs' adipogenic activity. This interaction enhances muscle repair and limits intramuscular fat, highlighting a potential therapeutic target for muscle injuries and obesity-related muscle issues. Link

**Innovative Drug Delivery via Extracellular Vesicles for Cardiac Therapies:** This article from the European Heart Journal discusses the potential of extracellular vesicles as vehicles for targeted drug delivery in treating heart diseases. Highlighting their capacity to encapsulate and protect various therapeutic agents, extracellular vesicles offer a promising solution to the limitations of current delivery systems like AAVs and LNPs, which can trigger immune responses or cause toxicity. The biocompatibility and efficiency of extracellular vesicles could revolutionize the delivery of cardiac therapies, potentially improving patient outcomes with fewer side effects. Link

Exosome Therapy's Role in Mitigating COVID-19 Inflammation: This study examines how exosome therapy can reduce inflammation caused by COVID-19, particularly by modulating cytokine levels, such as TNF-**α**, IL-6, IL-17, and IFN-**γ**. It highlights the therapy's potential to suppress the hyperinflammatory

response known as a cytokine storm, which is critical for severe COVID-19 cases. The findings suggest that exosomes may offer a viable treatment option for managing inflammation in infectious diseases. Link

**Stem Cell versus Exosome Therapy in Canine Multiple Sclerosis Model:** This study compares the effectiveness of stem cell therapy and stem cell-derived exosome therapy in treating experimentally induced multiple sclerosis in dogs. Findings indicate that both treatments significantly ameliorate clinical symptoms and enhance remyelination, but stem cells show a slightly superior effect in promoting recovery. This research supports the potential of both therapies in treating degenerative neurological diseases, highlighting their therapeutic benefits in clinical settings. Link

**Profiling Brain Extracellular Vesicles in Depression:** This study explores the microRNA profiles within brain-derived extracellular vesicles to understand molecular changes in major depressive disorder (MDD). Utilizing postmortem brain tissues, the research highlights specific microRNAs, such as miR-92a-3p and miR-129-5p, whose altered levels may affect neurotransmission and synaptic plasticity, offering potential new targets for treating depression. Link

**Lab-on-Chip System for Enhanced Cancer Treatment via small extracellular vesicles:** This study introduces a Lab-on-Chip system designed for efficient isolation and drug loading of small extracellular vesicles from serum, using a combination of surface acoustic wave technology and miniaturized electroporation. The Lab-on-Chip system was shown to improve the stability and cellular uptake of paclitaxel-loaded small extracellular vesicles compared to traditional ultracentrifugation methods, suggesting its potential to enhance small extracellular vesicles-mediated drug delivery in cancer therapy. Link

**Polymer-Bound Doxorubicin in Exosome-Mediated Cancer Therapy:** This study explores a novel route for delivering doxorubicin and its polymer-bound form, pHPMA-doxorubicin, using exosomes derived from human breast adenocarcinoma cells. It demonstrates that exosomes can be effectively loaded with these therapeutics and that spheroids, compared to adherent cells, secrete more exosomes and show decreased viability when treated with them. This highlights a promising method for targeting tumor sites with reduced systemic toxicity. Link

**Extracellular Vesicle-Matrix Interactions in Cellular Communication:** This article reviews how extracellular vesicles interact with the extracellular matrix, influencing cellular behavior and tissue materiality. The review discusses the roles of extracellular vesicles in transporting biomolecules and their integration into or transport out of the matrix, which can affect cell signaling and tissue dynamics. These interactions are pivotal for developing engineered biomaterials that could manipulate extracellular vesicles behavior for therapeutic outcomes. Link

**Universal STING Mimic Enhances Anti-Tumor Immunity:** Researchers have developed a universal STING mimic, named uniSTING, that boosts antitumor immunity by selectively activating tumor control pathways. This novel approach uses a polymeric architecture to

enhance the immune response against various cancer models, including metastatic forms, effectively differentiating it from current STING-targeting therapies which often trigger tumor-promoting inflammation. Link

**Hypoxia-Induced miR-5100 Enhances Cancer Metastasis via Exosomes:** The study focuses on the role of hypoxia-induced miR-5100 in promoting metastasis in head and neck squamous cell carcinoma through exosome-mediated mechanisms. It details how miR-5100 targets and downregulates the tumor suppressor QKI, leading to the activation of cancer-associated fibroblasts and facilitating a more aggressive metastatic phenotype. This pathway's elucidation offers potential therapeutic targets for disrupting exosomal communication that supports tumor growth and spread. Link

**Multi-Omics Profiling of Extracellular Vesicles in Human Plasma:** This study systematically profiles the protein and lipid components of circulating small extracellular vesicles from human plasma. It employs high-resolution density gradient fractionation and reveals distinct molecular features, including specific proteins and lipids, associated with extracellular vesicles. These findings could enhance our understanding of extracellular vesicles biology and facilitate the development of biomarkers. Link

**Extracellular Vesicles in Prostate Cancer Management: A Narrative Review:** This review article discusses the significant role of extracellular vesicles in prostate cancer management. It highlights how extracellular vesicles, which carry proteins, DNA, RNA, and lipids, influence cancer progression, impact the immune system, promote angiogenesis, and establish pre-metastatic niches. The encapsulation of these components within extracellular vesicles enhances their stability in bodily fluids, positioning extracellular vesicles as potential novel liquid biopsies for prostate cancer. Link

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