



## Oncotelic Therapeutics and Brush and Key Foundation Announce Publication in International Journal of Molecular Sciences Highlighting Context-Dependent Biomarkers in Liver and Pancreatic Cancer

AGOURA HILLS, Calif., Dec. 15, 2025 (GLOBE NEWSWIRE) -- Oncotelic Therapeutics, Inc. (OTCQB: OTLC) in collaboration with the **Brush and Key Foundation**, today announced the publication of a peer-reviewed research article in the *International Journal of Molecular Sciences* titled "**Comparative Tumor Microenvironment Analysis for HCC and PDAC Using KMplotter.**" Chang, W.-H.; Shah, D.; Myers, S.; Potts, M.; Qazi, S.; Trieu, V. *International Journal of Molecular Sciences* **2025**, 26, 11920.

The study presents a comprehensive, data-driven analysis of two emerging biomarkers-**DNMT3A** (DNA methyltransferase 3A) and **GMPS** (guanine monophosphate synthetase)-across **hepatocellular carcinoma (HCC)** and **pancreatic ductal adenocarcinoma (PDAC)**. By integrating survival outcomes, transcriptomic profiling, and tumor microenvironment (TME) analyses from more than **7,000 patients**, the authors demonstrate that the prognostic significance of these biomarkers is **highly context-dependent**, shaped by immune composition, metabolic reprogramming, and innate immune sensing pathways.

### Training the Next Generation of Scientists

The publication also reflects the **educational mission of the Brush and Key Foundation**, which supports young scholars through mentored research experiences that bridge scientific inquiry, critical thinking, and professional development.

The paper's author- **Drashya Shah**, an **intern supported by the Brush and Key Foundation**, shared the following reflection: "My experience working with the Brush and Key Foundation for Young Artists has been truly valuable and enriching. Throughout the research and writing process, I received consistent guidance and insightful feedback at every stage, which helped me refine my ideas and present my findings with clarity and precision. This collaborative environment not only strengthened the quality of my paper but also significantly boosted my confidence as a researcher. The skills and knowledge I gained through this journey are lifelong, and I will undoubtedly carry them forward into my future education and professional work. I am deeply grateful to everyone involved for their unwavering support and encouragement."

"This work exemplifies how advanced bioinformatics, translational oncology, and structured mentorship can intersect to generate meaningful scientific insight," said **Dr. Vuong Trieu**, co-author and contributor to the study. "Equally important, it demonstrates how hands-on research training helps prepare the next generation of scientists."

**Dr. Wen-Han Chang**, corresponding author, added, "The work highlights why biomarkers cannot be interpreted in isolation. Tumor context-immune composition, metabolic state, and innate sensing-fundamentally alters prognostic meaning and therapeutic opportunity."

### About the Brush and Key Foundation

The **Brush and Key Foundation** is a nonprofit organization dedicated to mentoring and educating young scholars through hands-on research, structured guidance, and interdisciplinary learning. The foundation emphasizes critical thinking, scientific communication, and real-world research experience to help students build durable skills applicable to future academic and professional pursuits.

### About Oncotelic

Oncotelic (f/k/a Mateon Therapeutics, Inc.), was formed in the State of New York in 1988 as OXiGENE, Inc., was reincorporated in the State of Delaware in 1992, and changed its name to Mateon Therapeutics, Inc. in 2016, and Oncotelic Therapeutics, Inc. in November 2020. Oncotelic is seeking to leverage its deep expertise in oncology drug development to improve treatment outcomes and survival of cancer patients with a special emphasis on rare pediatric cancers. Oncotelic has rare pediatric designation for Diffuse Intrinsic Pontine Glioma "DIPG" (through OT-101) through its 45% joint venture, melanoma (through CA4P), and Acute Myeloid Leukemia "AML" (through OXi 4503). Oncotelic also acquired PointR Data Inc. in November 2019.

Oncotelic acquired AL-101, during the 4th quarter of 2021, for the intranasal delivery of apomorphine. We intend to develop AL-101 for the treatment of Parkinson Disease ("PD"). Over 60,000 new patients are being diagnosed with PD in the United States and currently there are over 1 million patients in the US and expected to increase to over 1.2 million by 2030. In addition, approximately 10 million suffer from this disease globally. <https://www.parkinson.org/Understanding-Parkinsons/Statistics>. AL-101 is also being developed for Erectile Dysfunction ("ED"). ED is the most prevalent male sexual disorder globally. The percentages of men affected by ED are as follows: 14.3-70% of men aged 60 years, 6.7-48% of men aged 70 years, and 38% of men aged 80 years (Geerkens MJM et al. (2019). *Eur Urol Focus*. pii: S2405-4569(19)30079-3). However, with the increasing administration of PDE5 inhibitors in clinical practice, it was found that approximately 30-35% of ED patients are treatment failures (McMahon CN et al. (2006). *BMJ*, 332: 589-92). AL-101 is designed to target treatment failure ED patients who do not respond to PDE5 inhibitors. Through similar mechanism of action, AL-101 is being developed for Female Sexual Dysfunction ("FSD"). Female sexual dysfunction is a prevalent problem, afflicting approximately 40% of women and there are few treatment options. FSD is more typical as women age and is a progressive and widespread condition. (Allahdadi, KJ et al. (2009) *Cardiovascular & hematological agents in medicinal chemistry*, 7(4), 260-269). There is no available drug for the treatment of FSD. In June 2019, the U.S. Food and Drug Administration approved Vyleesi (bremelanotide) to treat acquired, generalized hypoactive sexual desire disorder ("HSDD") in premenopausal women. This is the only available drug treatment. Vyleesi has essentially replaced the only other drug for HSDD - however, it has a long list of drug-drug interactions, including commonly used antidepressants, such as fluoxetine and sertraline. In addition, it has a black box warning regarding its use with alcohol, a combination that has been associated with hypotension and syncopal episodes. Therefore, there is an urgent need for effective therapy against FSD and HSDD.

### Oncotelic's Cautionary Note on Forward-Looking Statements

This press release contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Securities

Exchange Act of 1934 (the "*Exchange Act*") that involve substantial risks and uncertainties. We generally identify forward-looking statements by terminology such as "may," "will," "should," "expect," "plan," "anticipate," "could," "would," "intend," "target," "aim," "project," "believe," "estimate," "predict," "potential," "seek," "indicate," or "continue" or the negative of these terms or other similar words, although not all forward-looking statements contain these words. Forward-looking statements include, but are not limited to, statements regarding our or our management's expectations, hopes, beliefs, intentions or strategies regarding the future, such as our estimates regarding anticipated operating income or losses, future performance, future revenues and projected expense, including that to fund our clinical and other development programs; our liquidity and our expectations regarding our needs for and ability to raise additional capital; our ability to continue as a going concern; our ability to select and capitalize on commercially desirable product opportunities as a result of limited financial resources; our ability to manage our expenses effectively and raise the funds needed to continue our business; our ability to retain the services of our current or future executive officers, directors and principal consultants; the competitive nature of our industry and the possibility that our products or product candidates may become obsolete or may not generate revenues as expected or at all; our ability to obtain and maintain regulatory approval of our existing products and any future products we may develop; the development of and the process of commercializing AI/Blockchain and other technologies for supporting the development of OT- 101 and Artemisinin for COVID-19, OT-101, including development of OT-101, Artemisinin, OXi4503, CA4P and our 2021 in-licensing of apomorphine; the initiation, timing, progress and results of our preclinical and clinical trials, research and development programs; regulatory and legislative developments in the United States and foreign countries; the timing, costs and other limitations involved in obtaining regulatory approval for any product; the further preclinical or clinical development and commercialization of our product candidates; the entering into any corporate transactions to develop our products through partnerships, joint ventures or other corporate transactions; our ability to make a proposed initial public offering between us and our joint-venture partners for the joint venture, statements about future plans related to the operations of the JV, taking the JV into an initial public offering or the success thereof; building and the success of our nanoparticle platform and the related success of launching the platform; the expected valuation of the JV, and therefore a corresponding increase in the valuation of the Company, by virtue of its ownership in the JV; the success of the launch of Pet2DAO, a corporation with a DAO infrastructure, the success of Pet2DAO and the plans surrounding the pet and animal health, the ability for the Company to register the tokens of Pet2DAO, the actual filing of a registration statement and approval of the tokens as registrable securities with the Securities and Exchange Commission ("*SEC*") through a registration statement, the ability of the tokens to be tradable or any value such tokens may have if they become tradable; our ability to obtain and maintain orphan drug exclusivity for some of our product candidates; the potential benefits of our product candidates over other therapies; our ability to enter into and maintain any collaboration with respect to product candidates; our ability to continue to develop or commercialize our products or product candidates in the event any license agreements in place with third parties expire or are terminated; the performance and conduct of third parties, including our third-party manufacturers and third party service providers used in our clinical trials; our ability to obtain and maintain intellectual property protection for our products and operate our business without infringing upon the intellectual property rights of others; the potential liability exposure related to our products and our insurance coverage for such exposure; our ability to form alliances with other third parties to develop the products in our pipeline through partnerships, joint ventures, mergers or acquisitions; the successful development of our sales and marketing capabilities; the size and growth of the potential markets for our products and our ability to serve those markets; the rate and degree of market acceptance of any future products; the volatility of the price of our common stock; the ability to achieve secondary trading of our stock in certain states; the dilutive effects of potential future equity issuances; our expectation that no dividends will be declared on our common stock in the foreseeable future; our ability to maintain an effective system of internal controls; the payment and reimbursement methods used by private or governmental third-party payers; our ability to retain adequate staffing levels; unfavorable global economic conditions; unfavorable global epidemic and pandemic conditions; a failure of our internal computer systems or those of our contractors and consultants; potential misconduct or other improper activities by our employees, contractors or consultants; the ability of our business continuity and disaster recovery plans to protect us in the event of a natural disaster; and other factors discussed elsewhere in this document or any document incorporated by reference herein or therein.

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