



Filana Therapeutics Announces Publication in *Cells* of Promising Preclinical Findings for Simufilam in TSC2-Deficient Cells

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Findings provide new insight into simufilam's effects on cellular stress responses and mitochondrial function

New research demonstrates a 37% reduction in elevated ATF4, consistent with attenuation of the ATF4-associated cellular stress response

Patient screening for planned Phase 2a study expected to begin by first quarter of 2027

AUSTIN, Texas, Oct. 28, 2026 (GLOBE NEWSWIRE) -- Filana Therapeutics, Inc. (NASDAQ: FLNA, "Filana Therapeutics", the "Company"), a biotechnology company currently focused on developing simufilam for the treatment of Tuberous Sclerosis Complex (TSC)-related epilepsy, today announced the publication by Yale researchers of new preclinical research on simufilam in the peer-reviewed journal *Cells*¹. The study examined simufilam's effects in a human cell line engineered to knock out the *TSC2* gene to model cellular changes associated with TSC. The work was conducted by researchers at Yale School of Medicine, including Angélique Bordey, PhD, who also serves as Senior Vice President (SVP), Neuroscience at Filana Therapeutics.

TSC is associated with abnormal cellular signaling that can affect multiple biological processes. In *TSC2*-deficient cells, simufilam reduced elevated expression of ATF4 by approximately 37%; ATF4 is a transcription factor associated with cellular stress responses. The study also identified changes in mitochondrial pathways associated with simufilam treatment, along with restoration of mitochondrial membrane potential.

Simufilam did not significantly suppress mTORC1 (mechanistic target of rapamycin complex 1) signaling in the current study. This is consistent with earlier research from the same laboratory showing that simufilam reduced seizure frequency in a mouse model of focal cortical dysplasia without significantly affecting mTOR signaling². Together, these findings suggest a potential mechanism of action distinct from direct mTOR inhibition, an established treatment approach for TSC-associated seizures. Clinical studies will be needed to determine whether simufilam can reduce seizures in patients with TSC-related epilepsy and offer meaningful clinical benefits.

These findings, which provide new insight into simufilam's effects on cellular activity, come as Filana prepares for its planned Phase 2a clinical study in TSC-related epilepsy.

"The *Cells* publication provides additional scientific support for our continued investigation of simufilam in TSC-related epilepsy," said **Rick Barry, President and Chief Executive Officer** of Filana Therapeutics. "Together with previously reported seizure-related findings in preclinical models^{2,3}, this new research strengthens the rationale for advancing the study of simufilam in TSC-related epilepsy. We are preparing for our planned Phase 2a study, with patient screening expected to begin by the first quarter of 2027."

"While mTORC1 hyperactivity is a central feature of TSC, other molecular and cellular dysfunctions may also contribute to the disease," said **Angélique Bordey, PhD**. "These findings provide new insight into simufilam's effects on cellular stress responses and mitochondrial function. Importantly, these effects were observed without significant suppression of mTORC1 signaling. Further studies in disease-relevant human neuronal models may help clarify the relevance of these findings to TSC-related epilepsy."

Key Findings from the *Cells* Paper¹

TSC is caused by mutations in *TSC1* or *TSC2* genes, leading to overactivity of mTORC1, a key regulator of cell growth and metabolism. Researchers studied simufilam in cultured *TSC2*-deficient HEK293T cells, a kidney-derived cell line, to better understand its effects on cellular dysfunction associated with the disease.

- **ATF4 and cellular stress:** *TSC2*-deficient cells showed elevated expression of ATF4, a transcription factor involved in cellular stress responses, metabolic regulation, and redox balance. Simufilam reduced this elevated expression by approximately 37% ($p=0.03$).
- **Mitochondrial membrane potential:** Simufilam restored mitochondrial membrane potential, a measure of mitochondrial function that was impaired in *TSC2*-deficient cells ($p=0.007$).
- **Mitochondrial pathways:** Proteomic analysis identified changes in proteins associated with mitochondrial translation and bioenergetic pathways.

These promising cellular findings complement Filana's broad preclinical research program, which includes previously reported seizure-related findings in animal models. Overall, these observations support a potential mTORC1-independent role for simufilam in attenuating cellular stress and regulating mitochondrial function.

This research was supported by funding from Alexion Pharmaceuticals, Inc. and the National Institutes of Health. Filana did not provide funding for the study. The HEK293T cell line was provided by the TSC Alliance.

About TSC and TSC-Related Epilepsy

TSC is a rare genetic disorder resulting from a mutation in the *TSC1* or *TSC2* gene. These mutations affect the mTOR pathway and can cause tumors to grow in multiple organs^{4,5}. Epilepsy is the most common health issue affecting the TSC community, with 80% to 90% of TSC patients experiencing seizures⁶. TSC-related epilepsy affects approximately 45,000 people in the U.S.^{2,4}. Most patients start having seizures within their first year of life². Even with multiple approved treatments, more than 60% of TSC patients remain refractory to antiepileptic therapy⁷.

About Filana Therapeutics, Inc.

Filana Therapeutics, Inc. (NASDAQ: FLNA), is a biotechnology company focused on developing novel, investigational therapies to modulate the filamin A protein for the treatment of central nervous system disorders, such as Tuberous Sclerosis Complex (TSC)-related epilepsy, and other diseases associated with dysregulation or overexpression of filamin A.

For more information, please visit: <https://www.FilanaTx.com>

References:

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Cautionary Note Regarding Forward-Looking Statements:

This news release contains forward-looking statements that may include but are not limited to statements regarding: the timing and plans to initiate and conduct clinical studies with simufilam in TSC-related epilepsy; the design, structure, duration, objectives, endpoints, patient population, conduct, enrollment, completion, and potential results of our planned Phase 2a clinical trial; our ability to work with clinical research organizations, clinical sites, patient advocacy organizations, and the TSC community to advance the trial efficiently; the potential for simufilam as a treatment for TSC-related epilepsy and other potential indications; and the timing of anticipated milestones. These statements may be identified by words such as “anticipate”, “before”, “believe”, “could”, “expect”, “forecast”, “intend”, “may”, “pending”, “plan”, “possible”, “potential”, “prepares for”, “will”, and other words and terms of similar meaning.

Such statements are based on our current expectations and projections about future events. Such statements speak only as of the date of this news release and are subject to a number of risks, uncertainties and assumptions, including, but not limited to, those risks relating to our ability to initiate, enroll, conduct, and complete the planned Phase 2a study of simufilam in TSC-related epilepsy; our ability to engage clinical trial sites and participants; our ability to work effectively with clinical research organizations, vendors, investigators, patient advocacy organizations, and the TSC community; potential changes to the clinical trial protocol, trial design, endpoints, timing, patient population, or development plans; our ability to generate clinical data that support further development of simufilam; risks inherent in drug discovery and development; and other risks specific to Filana Therapeutics, Inc., as described in the section entitled “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2025 and subsequent reports to be filed with the SEC. The foregoing sets forth many, but not all, of the factors that could cause actual results to differ from expectations in any forward-looking statement. In light of these risks, uncertainties and assumptions, the forward-looking statements and events discussed in this news release are inherently uncertain and may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Accordingly, you should not rely upon forward-looking statements as predictions of future events. Except as required by law, we disclaim any intention or responsibility for updating or revising any forward-looking statements. For further information regarding these and other risks related to our business, investors should consult our filings with the SEC, which are available on the SEC's website at www.sec.gov.

All of our pharmaceutical assets under development are investigational product candidates. These have not been approved for use in any medical indication by any regulatory authority in any jurisdiction and their safety, efficacy or other desirable attributes, if any, have not been established in any patient population. Consequently, none of our product candidates is approved or available for sale anywhere in the world.

Our clinical results from earlier-stage clinical trials or preclinical studies may not be indicative of future results from later-stage or larger scale clinical trials and do not ensure regulatory approval. You should not place undue reliance on these statements or any scientific data we present or publish.

We are in the business of new drug discovery and development. Our research and development activities are long, complex, costly and involve a high degree of risk. Holders of our common stock should carefully read our Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q in their entirety, including the risk factors therein. Because risk is fundamental to the process of drug discovery and development, you are cautioned to not invest in our publicly traded securities unless you are prepared to sustain a total loss of the money you have invested.

