NEWS RELEASE

Coya Therapeutics Announces Publication of Scientific Research Linking Inflammation and Oxidative Stress to the Progression of Parkinson's Disease

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Study demonstrates a correlation between peripheral pro-inflammatory mechanisms, particularly monocytes and oxidative stress, in the progression and severity of Parkinson's Disease (PD);

In addition to PD, Coya has sponsored research demonstrating the potentially critical role of inflammation in the progression and severity of other diseases, such as amyotrophic lateral sclerosis (ALS), frontotemporal dementia (FTD) and Alzheimer's disease (AD);

Coya is developing COYA 302, which has a dual immunomodulatory mechanism of action intended to enhance the anti-inflammatory function of regulatory T cells (Tregs) and suppress the inflammation produced by activated monocytes and macrophages

HOUSTON--(BUSINESS WIRE)-- **Coya Therapeutics, Inc.** (NASDAQ: COYA) ("Coya" or the "Company"), a clinical-stage biotechnology company focused on developing biologics that enhance regulatory T cell (Treg) function in patients with neurodegenerative disorders, announces the publication of a new research study, partially funded by Coya. The study, led by Drs. Aaron Thome, a scientific advisor to Coya, and Stanley H. Appel, the chairperson of Coya's Scientific Advisory Board, explores the role of immune dysfunction in the pathogenesis of PD. It was published in the scientific journal Frontiers of Immunology, which can be accessed **here.**

PD is one of the most prevalent neurodegenerative disorders, marked by the progressive loss of dopaminergic

neurons in the substantia nigra. This degeneration leads to motor symptoms such as tremors, rigidity, and bradykinesia, as well as non-motor symptoms, including cognitive impairment, autonomic dysfunction, and psychiatric disturbances. Peripheral immune dysfunction, characterized by altered cytokine levels and dysregulated immune cell function, appears to play a significant role in PD pathogenesis.

Dr Stanley Appel, Director Johnston Center for Cellular Therapeutics at Houston Methodist Hospital commented: "The data offer strong insights into how peripheral inflammation is a key driver of the pathophysiology of PD. During the early stages of disease, myeloid cells are anti-inflammatory, but in later stages there is increased oxidative stress and proinflammatory signaling that promote peripheral and CNS dysfunction. The observed correlation of peripheral monocytes with disease burden and progression further supports the proposed dual effect of COYA 302. This therapy is designed to both enhance the anti-inflammatory function of Tregs and suppress the inflammation caused by monocytes and macrophages."

"Results of this novel research study confirm our findings in other serious neurodegenerative diseases driven by sustained inflammation and strengthen our multitargeted immunomodulatory approach as a strategy for treating severe conditions with high unmet needs" Dr Fred Grossman, Chief Medical Officer, added.

Highlights of Study Results

This cross-sectional study in peripheral blood monocytes isolated from patients with PD and age- and sex-matched controls showed differential expression of inflammatory, immunoregulatory, and chemotactic receptor transcripts, as summarized below:

- Upregulation of the pro-inflammatory cytokine interleukin 6 (IL-6) and interleukin 1 beta (IL-1b) transcripts was observed in PD monocytes compared to control monocytes, and its expression increased with advanced stages of PD.
- The chemokine receptor C-C receptor type 2 (CCR2), which facilitates monocyte migration to sites of inflammation, was upregulated in PD monocytes compared to controls. Additionally, CCR2 expression was increased in early PD and continued to rise with advancing disease stages.
- Transcripts of the mannose receptor (MRC1/CD206), a marker of alternatively activated (M2) myeloid cells, were upregulated in early-stage PD monocytes but declined with disease progression, resulting in decreased expression in late-stage disease.
- CD163, a scavenger receptor associated with immunoregulation and protection from oxidative stress, was increased in monocytes from PD patients. CD163 transcripts were low in early-stage PD but increased with disease progression.
- Peroxisome proliferator-activated receptor gamma coactivator 1-alpha (PPARGC1A or PGC-1α), an important

transcriptional activator, exhibited a slight but non-significant increase in early-stage PD monocytes. However, its transcript levels progressively declined as the disease advanced.

- Glutathione peroxidase 4 (GPX4), an antioxidant enzyme implicated in PD, was elevated in PD monocytes compared to controls. When stratified by disease stage, GPX4 expression increased early but declined in later stages of disease.
- Sirtuin 1 (SIRT1) and Sirtuin 3 (SIRT3) are NAD^+-dependent deacetylases with critical roles in oxidative stress responses, mitochondrial regulation, and inflammation. SIRT1 transcripts were upregulated in PD monocytes relative to controls; expression increased during early and intermediate disease stages but declined with disease progression. Conversely, SIRT3 transcripts were reduced in PD monocytes, with early stage decreases that became more pronounced as disease advanced.

About COYA 302

COYA 302 is an investigational and proprietary biologic combination therapy with a dual immunomodulatory mechanism of action intended to enhance the anti-inflammatory function of regulatory T cells (Tregs) and suppress the inflammation produced by activated monocytes and macrophages. COYA 302 comprises proprietary low dose interleukin-2 (LD IL-2) and CTLA-4 Ig and is being developed for subcutaneous administration for the treatment of patients with ALS. These mechanisms may have additive or synergistic effects.

COYA 302 is an investigational product not yet approved by the FDA or any other regulatory agency.

About Parkinson’s Disease

Parkinson’s disease is a type of neurologic movement disorder, affecting the brain and causing difficulty with movements, or motor symptoms. It is characterized by its most common motor symptoms - tremors (a form of rhythmic shaking), stiffness or rigidity of the muscles, and slowness of movement (called bradykinesia) - but also manifests in non-motor symptoms including sleep problems, constipation, anxiety, depression, and fatigue, among others, which can be present well before any visible motor symptoms. It is a chronic and progressive condition, meaning that the symptoms become worse over time and can affect the ability to perform common daily activities. There are an estimated 1 million people in the U.S. living with Parkinson’s disease and more than 10 million people worldwide. Most people who develop the symptoms of Parkinson’s disease do so after the age of 50, but Parkinson’s disease can affect younger persons as well. Approximately 10% of Parkinson’s diagnoses occur before age 50.1,2

1. National Institute of Neurological Disorders and Stroke website (accessed July 2025).
2. Parkinson’s Foundation website (accessed July 2025).

About Coya Therapeutics, Inc.

Headquartered in Houston, TX, Coya Therapeutics, Inc. (Nasdaq: COYA) is a clinical-stage biotechnology company developing proprietary treatments focused on the biology and potential therapeutic advantages of regulatory T cells ("Tregs") to target systemic inflammation and neuroinflammation. Dysfunctional Tregs underlie numerous conditions, including neurodegenerative, metabolic, and autoimmune diseases, and this cellular dysfunction may lead to sustained inflammation and oxidative stress resulting in lack of homeostasis of the immune system.

Coya's investigational product candidate pipeline leverages multiple therapeutic modalities aimed at restoring the anti-inflammatory and immunomodulatory functions of Tregs. Coya's therapeutic platforms include Treg-enhancing biologics, Treg-derived exosomes, and autologous Treg cell therapy.

For more information about Coya, please visit **www.coyatherapeutics.com**

Forward-Looking Statements

This press release contains "forward-looking" statements that are based on our management's beliefs and assumptions and on information currently available to management. Forward-looking statements include all statements other than statements of historical fact contained in this press release, including information concerning our business plans and objectives, current and future clinical and preclinical development activities, timing and success of our ongoing and planned clinical trials and related data, the timing of announcements, updates and results of our clinical trials and related data, our ability to obtain and maintain regulatory approval, the potential therapeutic benefits and economic value of our product candidates, competitive position, industry environment and potential market opportunities. The words "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect," and similar expressions are intended to identify forward-looking statements.

Forward-looking statements are subject to known and unknown risks, uncertainties, assumptions and other factors including, but not limited to, those related to risks associated the success, cost and timing of our product candidate development activities and ongoing and planned clinical trials; our plans to develop and commercialize targeted therapeutics; the progress of patient enrollment and dosing in our preclinical or clinical trials; the ability of our product candidates to achieve applicable endpoints in the clinical trials; the safety profile of our product candidates; the potential for data from our clinical trials to support a marketing application, as well as the timing of these events; our ability to obtain funding for our operations; development and commercialization of our product candidates; the timing of and our ability to obtain and maintain regulatory approvals; the rate and degree of market acceptance and clinical utility of our product candidates; the size and growth potential of the markets for our product candidates, and our ability to serve those markets; our commercialization, marketing and manufacturing capabilities and strategy; future agreements with third parties in connection with the commercialization of our

product candidates; our expectations regarding our ability to obtain and maintain intellectual property protection; our dependence on third party manufacturers; the success of competing therapies or products that are or may become available; our ability to attract and retain key scientific or management personnel; our ability to identify additional product candidates with significant commercial potential consistent with our commercial objectives; and our estimates regarding expenses, future revenue, capital requirements and needs for additional financing.

We have based these forward-looking statements largely on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, business strategy, short-term and long-term business operations and objectives, and financial needs. Moreover, we operate in a very competitive and rapidly changing environment, and new risks may emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed herein may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. Although our management believes that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur. We undertake no obligation to publicly update any forward-looking statements, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise.

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