EG-301's Phase II Clearance Underscores AI's Strategic role in Efficient Drug Development

Evergreen Therapeutics recently announced that FDA has cleared its oral candidate EG-301 to enter Phase II clinical trials for progressive dry age-related macular degeneration (dry AMD). With no therapies currently approved for dry AMD, a successful development of EG-301 which is capable of slowing disease progression and improve visual acuity, wound fulfil a majorly unmet medical need and capture significant market potential.

The advancement of EG-301 underscores a reverse-translational approach empowered by Evergreen's AI-driven clinical models, which enable precise indication prioritization and mechanistic insight. EG-301 acts as a functional inhibitor of acid sphingomyelinase (ASM), addressing lipid metabolic dysregulation within retinal pigment epithelium (RPE) cells, offering a novel therapeutic pathway for dry AMD.

Unlike conventional drug discovery often hampered by ambiguous targets and protracted timelines. Evergreen's AI platform systematically analyzed clinical and genomic and phenotypic data, including 293 human retinal and RPE–choroid samples, to delineate molecular differences between dry AMD patients and healthy controls. Through phenotype–genotype association analysis (PheWAS) and pathway interrogation, the platform identified lipid metabolic dysregulation as a key disease driver and nominated 54 novel drug targets, providing clear roadmap for development.

Leveraging gene set enrichment analysis (GSEA), pathway analysis (IPA), and chemical perturbation datasets (CMap), the platform established multi-layered connections between candidate compounds and pathways related to lipid metabolism, oxidative stress, and inflammation. and employed by evaluating efficacy, tissue targeting, and safety profile, it ranked EG-301 among the top candidates for ASM inhibition and RPE-target engagement.

Importantly, the platform informed critical aspects of clinical trial design and future development strategy. Sensitive functional endpoints such as best-corrected visual acuity (BCVA) were incorporated into the Phase II study to enable early detection of efficacy, alongside enhanced patient retention protocols. The lipid metabolic dysregulation mechanism also supports EG-301's potential expansion into related conditions such as retinal ischemia, age-related ocular degeneration, and other degenerative conditions—illustrating the platform's utility in building pipeline opportunities beyond the initial indication.