



## Therapeutic and Protective Effects of a New Heterocyclic Compound in Diabetes Complicated by Ocular Diseases

Ying WANG & Quanhong HAN \*

*Department of Retina and Vitreous, Tianjin Eye Hospital, Tianjin Key Lab of Ophthalmology and Visual Science, Tianjin Eye Institute, Nankai University Affiliated Eye Hospital, Clinical College of Ophthalmology Tianjin Medical University, Tianjin, China*

**SUMMARY.** The new heterocyclic compound 4-(4-aminophenyl)morpholin-3-one (1), designed using 2-(2-chloroethoxy)acetyl chloride (2) and 4-nitroaniline (3) as a raw material, was produced through multiple formation route in success and evidently characterized through <sup>1</sup>H NMR, IR, together with crystallography of single crystal X-ray. Besides, the aim of this investigation was to assess the combined treatment of diabetes mellitus along with ocular diseases, and to analyze its mechanism. First of all, the determination of real time RT-PCR was accomplished and the GLP-1 receptor on endothelial cells. Then, the accumulation of AGE in the retinal capillary pericytes was detected with ELISA assay.

**RESUMEN.** El nuevo compuesto heterocíclico 4-(4-aminofenil)morfolin-3-ona (1), diseñado utilizando cloruro de 2-(2-cloroetoxi)acetilo (2) y 4-nitroanilina (3) como materia prima, se produjo a través de múltiples ruta de formación en éxito y evidentemente caracterizada a través de <sup>1</sup>H RMN, IR, junto con cristalografía de rayos X monocristalino. Además, el objetivo de esta investigación fue evaluar el tratamiento combinado de la diabetes mellitus junto con enfermedades oculares y analizar su mecanismo. En primer lugar, se realizó la determinación de la RT-PCR en tiempo real y el receptor de GLP-1 en células endoteliales. Luego, la acumulación de AGE en los pericitos de los capilares retinianos se detectó con el ensayo ELISA.

**KEY WORDS:** diabetes, heterocyclic compound, X-ray

\* Author to whom correspondence should be addressed. *E-mail:* ningwei9284540995@163.com