

ンチン[®]が免疫抑制作用や炎症性サイトカイン減少作用を持つことからRA患者における臨床応用の可能性が示唆された。

1) Xu W et al. Eur J Pharmacol. 2020, 881 : 173232.

2-1.

Plant-derived photorepair system for removing UV-induced pyrimidine dimers in human cells

(社会人大学院博士課程4年分子病理学分野)

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Photolyase are enzymes that use blue light energy to remove UV-induced DNA damage, such as cyclobutene pyrimidine dimers (CPDs) and pyrimidine pyrimidines (6-4) (6-4pp). While photolyase have been identified and studied in various organisms, including bacteria, fungi, plants and non-placental animals, their function in placental mammals, such as humans, remains unclear.

Here, we report the identification of a novel photolyase gene from acerola (*Malpighia emarginata* DC.) using RNA-seq data. We constructed expression vectors containing the full-length of acerola photolyase coding sequence and transfected them into HEK293 cells to investigate its photorepair ability. After UV irradiation, cells expressing acerola photolyase showed a significant reduction in CPD levels upon subsequent blue light exposure, as measured by ELISA. We also observed a decrease in CPD levels when extracellular vesicle (EV) fractions released from HEK293 cells expressing photolyase were added to recipient cells, although the efficiency was lower compared to direct photolyase overexpression.

Our findings suggest that acerola photolyase has the potential to repair UV-induced DNA damage in human cells, and that photolyase-containing EVs may transfer their photorepair ability to recipient cells. This study provides new insights into the function and potential to be useful in the treatment and prevention of UV-induced damage and related diseases.

2-2.

Clinical features of 55 cases of cytomegalovirus retinitis in Japan

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【Purpose】 Cytomegalovirus (CMV) retinitis is caused by reactivation of latent CMV infection in the host under immunosuppressive conditions. We report the clinical features and outcome of cases of CMV retinitis diagnosed at our hospital.

【Patients and Methods】 We retrospectively reviewed the medical records and evaluated the patient background, underlying condition, systemic immune status, and visual outcome of 55 patients between 2003 and 2022 at the Department of Ophthalmology, Tokyo Medical University.

【Results】 The mean age at onset of retinitis was 53.4 ± 18.3 years, and male-to-female ratio was 42 : 13. The mean time from onset of ocular symptoms to diagnosis was 100.9 ± 120.7 days. Regarding underlying conditions, 25 patients were HIV-positive, 12 had malignant lymphoma, 6 had diabetes, 5 had leukemia, 4 had collagen disease, 2 had solid lung cancer and breast cancer, respectively, and 4 had other diseases. The median CD4+ T-cell count at onset of retinitis was 96 ± 226.9 cells/ μ l. The median number of CMV-DNA copies in aqueous humor measured by real-time PCR was $4.1 \times 10^4 \pm 8.0 \times 10^5$ copies/ml. LogMAR values of initial and final visual acuity were 0.47 ± 0.70 and 0.67 ± 0.90 , respectively, with no significant difference. The median follow-up period was 15.0 ± 56.7 months.

【Conclusion】 CMV retinitis may develop from a variety of underlying conditions other than HIV infection. As it takes a long time to diagnose the disease from onset, visual outcome is often poor. Early diagnosis as well as effective anti-viral treatment are essential to improve visual outcome.