

ヒトヘムオキシゲナーゼ1遺伝子変異に対する遺伝子修復治療への基礎的検討

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Analysis of Alu-mediated genomic deletion in a case with hemeoxygenase-1 deficiency

Research Project

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Research Category

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Section

一般

Research Field

Pediatrics

Research Institution

Kanazawa university

Principal Investigator

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Keywords

Human hemeoxygenase-1 / hereditary disease / gene correction / Alu repeat / homologous recombination / site-specific recombinase

Research Abstract

To investigate the pathomechanisms of Alu-mediated genomic deletion observed in a case with hemeoxygenase-1 (HO-1) deficiency, following analyses have been performed ;

1. Functional analyses of topoisomerase II-binding sites (TBSs) located in the introns and Alu repeats of the human HO-1 gene.












The role of Alu-mediated homologous recombination has been established as a pathomechanism in some hereditary diseases and cancers. Since chromosomal double-strand breaks (DSBs) play a crucial role in the homologous recombination processes, potential TBSs found in the introns and Alu repeats, surrounding HO-1 exon 2, could be the target sites of homologous recombination. To test this hypothesis, determination of functional TBSs in the

HO-1 gene was performed. HO-1^{+/+} LCLs established from the normal controls were treated with the inhibitors (VP-16 and doxorubicin) of topoisomerase II. The DNA fragments produced by the inhibition of endogenous topoisomerase II resulting in the creation of DSBs w ... More

Research Products (11 results)

All Other

All Publications (11 results)

- [Publications] Tomoko Toma: "HO-1 production by monocytes an a stress regulator and its clinical relevance"International Journal of Hematology. 73,suppl.. 64 (2001) 
- [Publications] Yoshinori Goto: "A novel single-nucleotide polymorphism in the 3'-untranslated region of the human dihydrofolate reductase gene with enhanced expression"Clinical Cancer Research. Vol.7. 1952-1956 (2001) 
- [Publications] Lijie Yue: "A functional single-nucleotide polymorphism in the human cytidine deaminase gene contributing to ara-C sensitivity"Pharmacogenetics. Vol.13. 29-38 (2003) 
- [Publications] Yutaka Saikawa: "Emergent properties of feedback regulation and stem cell behavior in a granulopoiesis model as a complex system"Complex Systems. Vol.14. 45-61 (2003) 
- [Publications] Rui Wang, Ed.: "Carbon Monoxide and Cardiovascular Functions(CRC Press, Boca Raton, Florida)"Human HO-1 Deficiency and Cardiovascular Dysfunction. Section IV. Molecular Pathology,. 320 (2002) 
- [Publications] Tomoko Toma: "HO-1 production by monocytes as a stress regulator and its clinical relevance"International Journal of Hematology. 73, suppl.. 64 (2001) 
- [Publications] Yoshinori Goto: "A novel single-nucleotide polymorphism in the 3'-untranslated region of the human dihydrofolate reductase gene with enhanced expression"Clinical Cancer Research. 7. 1952-1956 (2001) 
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- [Publications] Rui Wand, Ed.: "Human HO-1 deficiency and cardiovascular dysfunction. Section IV. Molecular pathology"Carbon Monoxide and Cardiovascular Functions CRC Press, Boca Raton, Florida. 320 (2002) 
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