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ТҮВДЭНЖАМЦЫН БАЛЖИННЯМ

TLR9/ IFN-γ-ЫН ХАРИЛЦАН ДЭМЖИХ ҮЙЛЧЛЭЛД ЭЕРЭГ БОЛОН СӨРӨГ ЗОХИЦУУЛАГЧ УУРГИЙН ИДЭВХЖЛИЙГ ҮНЭЛСЭН ДҮН

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ТОВЧ ХУРААНГУЙ

Сэдэв: TLR9/IFN-γ-ийн харилцан дэмжих үйлчлэлд эерэг болон сөрөг зохицуулагч уургийн идэвхжлийг үнэлсэн дүн

Үндэслэл: Анхдагч дархлааны TLR9 нь бактери, вирус, эукариот биетийн доторх метилжээгүй CpG ДНХ-ийн дарааллыг таньснаар дархлааны урьтал цитокин болон IFN-α, IFN-β-ын нийлэгжлийг өдөөж дархлааны урвалыг эхлүүлдэг. Өвөрмөц дархлаа тогтолцооны IFN-γ нь дархлааны үндсэн эсүүдээс ялгарч халдварын эсрэг өвөрмөц, хүчтэй урвалыг өрнүүлдэг. Бидний өмнөх судалгаагаар TLR9-ийн лиганд CpG ДНХ IFN-γ-ийн дохио дамжилтыг нэмэгдүүлж байсан. TLR9/IFN-γ-ийн харилцан дэмжих үйлчлэлийг нөхцөлдүүлэгч гол уургийг илрүүлэх нь энэ судалгааны үндэслэл боллоо.

Зорилго: IFN-γ/TLR9-ийн харилцан дэмжих үйлчлэлд эерэг болон сөрөг зохицуулагч уургуудын идэвхжлийг тодорхойлох

Материал, арга аргачлал: Энэхүү судалгааг АШУҮИС-ийн ШУТГ-ийн харьяа Цөм лабораторид хийж гүйцэтгэсэн. Судалгаанд хулганын аортын шугаман эндотель эсийг (END-D) өсгөвөрийг ашигласан. Эндотель эсийг TLR9-ийн лиганд CpG ДНХ өдөөсөөс 1 цагын дараа IFN-γ-аар үйлчилсэн. IFN-γ-аар үйлчилсэнээс 0.5, 1, 2, 4, 8 цагийн дараа эсийг задалж уургийг ялгасан. Иммуноблоттингийн шинжилгээгээр сөрөг (SHP-2, SOCS1, PIAS1) болон эерэг (p38) зохицуулагч уургийн нийлэгжлийг тодорхойлсон.

Үр дүн: TLR9-ийн лигнад CpG ДНХ-ээр өдөөхөд IFN-γ-ийн эерэг зохицуулагч p38 уургийн фосфоржилтыг 1-2 цагт эрс нэмэгдүүлсэн. CpG ДНХ нь IFN-γ-ийн сөрөг зохицуулагч SOCS1, PIAS1 уургийн нийлэгжлийг 2-8 цагуудад бууруулж байсан. Харин SHP-2 уургийн нийлэгжилд нөлөө үзүүлээгүй.

Дүгнэлт: TLR9-ийн лиганд CpG ДНХ нь IFN-γ-ийн сөрөг зохицуулагч SOCS1, PIAS1уургийн нийлэгжлийг бууруулж байна. CpG ДНХ нь IFN-γ-ийн эерэг зохицуулагч p-38 уургийн фосфоржилтыг нэмэгдүүлж байна. Therefore, TLR9 ligand CpG DNA increased IFN-γ signal transduction in endothelial cell line.

Түлхүүр үг: CpG DNA, p38, PIAS1, SOCS1, SHP2, END-D

ABSTRACT

Title: Result of negative and positive regulatory protein activation in the TLR9/IFN-γ synergistic signal transduction

Introduction: TLR9 recognizes unmethylated CpG DNA of bacteria, virus, and intracellular parasite and induce IFN-α, IFN-β and pro-inflammatory cytokine expression which results in the activation of immune response. IFN-γ produced from immune cell has a strong effect against an infection. In our previous study, we revealed that there is a synergistic action between TLR9 and IFN-γ signaling in the endothelial cells. We performed the experiment in order to determine a protein that induces synergistic action of TLR9 ligand CpG DNA/IFN-γ signal transduction.

Purpose: To determine the role of negative and positive regulator proteins on the IFN-γ/TLR9 synergistic signaling pathway.

Materials and Methods: This study was held in the Core Laboratory, Science Technology Center, Mongolian National University of Medical Sciences (MNUMS). In this study, murine endothelial cell (END-D) culture was used. END-D cells were seeded in a 6-well plastic plate, pre-treated with TLR9 ligand CpG DNA and then stimulated with IFN-γ. The negative (SHP-2, SOCS1, PIAS1) and positive (p38) regulator protein expression was detected by Western blotting.

Results: We assesed viability of the cells that treated with up to 20 μM of CpG DNA, using CCK 8 kit. Treatment by TLR9 ligand CpG DNA and IFN-γ increased positive regulator p38 phosphorylation at 1-2 hours. CpG DNA inhibited IFN-γ negative regulator SOCS1 and PIAS1 protein expression at 2-8 hours and SHP-2 expression could not affect. Therefore, TLR9 ligand CpG DNA increased IFN-γ signal transduction in endothelial cell line.

Conclusion: TLR9 ligand CpG DNA has decreased IFN-γ negative regulator protein PIAS1 and SOCS1 expression. CpG DNA has increased IFN-γ positive regulator protein p38 phosphorylation.

Keyword: CpG DNA, p38, PIAS1, SOCS1, SHP2, END-D

ГАРЧИГ

ХОЁРДУГААР БҮЛЭГ. СУДАЛГААНЫ ХЭРЭГЛЭГДЭХҮҮН БА АРГА ЗҮЙ

ГУРАВДУГААР БҮЛЭГ. СУДАЛГААНЫ ҮР ДҮН

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