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Systems And Methods For The Preparation Of Peptide Receptive Mhc-I/Chaperone Complexes With Native Glycan Modifications

Tech ID: 33059 / UC Case 2020-251-0

BACKGROUND

Typically, peptide receptive MHC-I multimer reagents are prepared in bacterial (*E. coli*) culture. While this is efficient, it does not result in glycosylation of the MHC-I peptide fragments as is done in mammalian cells. As a result, if such reagents are produced in mammalian cells, proper glycosylation would result and the reagents would have a potentially more accurate representation of the natural T-cell target.

TECHNOLOGY DESCRIPTION

This technology involves the coexpression of leucine zipper tagged single chain class I MHC molecules and the TAPBPR chaperone in mammalian cells to produce glycosylated MHC-I that are ready to accept an antigenic peptide of interest.

The expressed MHC-I can be purified from the supernatant, the leucine zippers removed through use of a specific protease (with a site engineered into the construct), multimerized, and contacted with the peptide of interest. In contrast with other technologies in this portfolio (e.g. 2018-408), no placeholder peptide is needed to create the peptide receptive MHC-I.

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APPLICATIONS

Peptide-receptive (empty) MHC-I reagents

MHC-I Multimer reagents

T Cell receptor discovery

T Cell epitope identification

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OTHER INFORMATION

KEYWORDS

MHC-I, Glycosylated MHC-I, MHC-I multimer, Empty MHC-I, Peptide receptive MHC-I, Mammalian MHC-I, MHC-I tetramer, MHC-I reagent, TAPBPR, chaperone, MHC, Major Histocompatibility Complex

CATEGORIZED AS

- ▶ **Materials & Chemicals**
- ▶ Biological
- ▶ **Research Tools**
- ▶ Reagents

RELATED CASES

2020-251-0, 2018-408-0

ADVANTAGES

Glycosylated MHC-I are more realistic

Efficient production of soluble MHC-I reagents from mammalian cells

MHC-I can be purified from supernatants

No need for placeholder peptide

INTELLECTUAL PROPERTY INFORMATION

Country	Type	Number	Dated	Case
European Patent Office	Published Application	402841.2	07/20/2022	2020-251
United States Of America	Published Application	20210155670	05/27/2021	2020-251

Additional Patents Pending

RELATED MATERIALS

- ▶ [Production of soluble pMHC-I molecules in mammalian cells using the molecular chaperone TAPBPR - 12/31/2019](#)

RELATED TECHNOLOGIES

- ▶ [Systems And Methods For Generating Class 1 Major Histocompatibility Complex Multimer Screening Reagents Using Chaperone Mediated Peptide Exchange](#)

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