US 20220127319A1

(19) United States

(12) Patent Application Publication

PASZEK et al.

(10) Pub. No.: US 2022/0127319 A1

(43) Pub. Date: Apr. 28, 2022

(54) **RECOMBINANT MUCINS, AND COMPOSITIONS AND METHODS FOR USING THE SAME**

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(21) Appl. No.: **17/422,740**

(22) PCT Filed: **Jan. 15, 2020**

(86) PCT No.: **PCT/US2020/013743**

§ 371 (c)(1),
(2) Date: **Jul. 13, 2021**

Related U.S. Application Data

(60) Provisional application No. 62/792,660, filed on Jan. 15, 2019.

Publication Classification

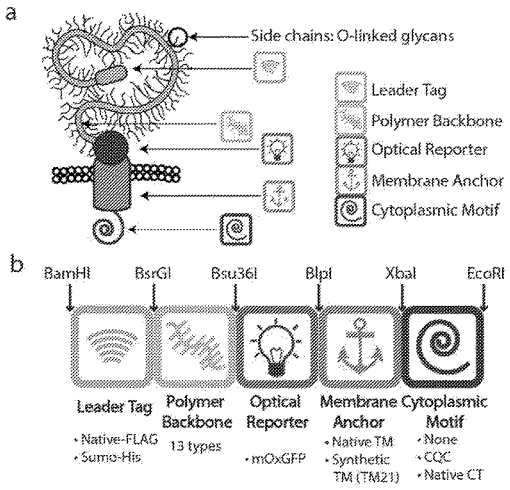
(51) **Int. Cl.**
C07K 14/47 (2006.01)

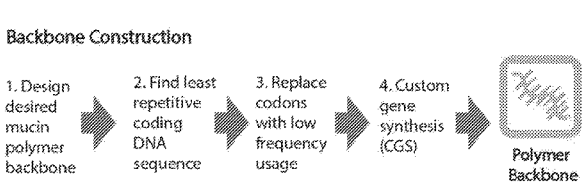
(52) **U.S. Cl.**
CPC *C07K 14/4727* (2013.01); *C07K 2319/03* (2013.01)

(57) **ABSTRACT**

Provided are compositions and methods related to improved mucins, methods of making the improved mucins, and cells and cell cultures that express glycosylated mucins. The compositions and methods provide improved cell cultures, and improved methods of producing co-expressed proteins that are distinct from the mucins.

Specification includes a Sequence Listing.





d Condon-scrambled Polymer Backbones (13 total)

Name	Sequence	# Repeats	%S/T
Wild-type Muc1	PDTRPAPGSTAPPAHGVTSA	x0, x10, x21, x42	25.0
Muc1 single mutant (Muc1_S)	PDTRPAPGATAPPAHGVTSA	x21	20.0
Muc1 double mutant (Muc1_D)	PDTRPAPGATAPPAHGVTAA	x21	15.0
Muc1 triple mutant (Muc1_T)	PDARPAPGATAPPAHGVTAA	x21	10.0
Synthetic 1 (Syn1)	DAATPAP	x40, x80	14.2
Synthetic 2 (Syn2)	DAATPAPP	x40, x80	12.5
Synthetic 3 (Syn3)	PPASTSAPG	x40	33.3
Lubricin consensus (Syn4)	KEPAPTTP	x20	25.0