

FIG. 1A

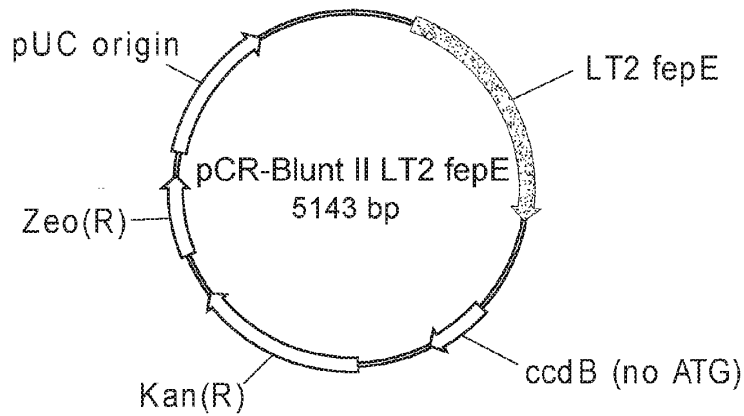


FIG. 1B

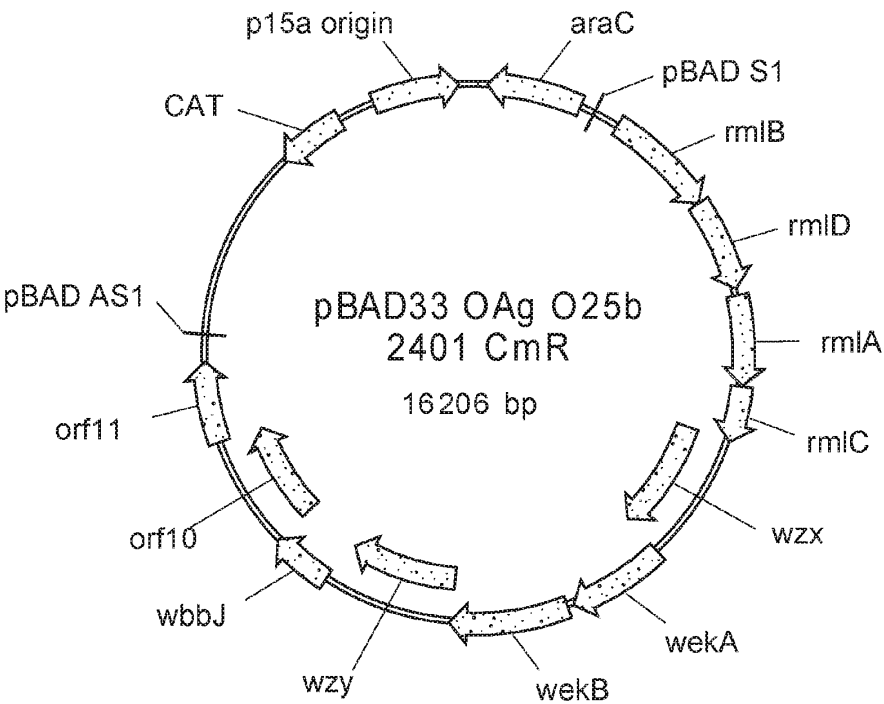


FIG. 2

1	10	20	30	40	50	60	70	80	90
K12\W3110\WzzB	MRVNNVSGQNHDP	EQIDILDLVQLWRGKNTIIISVIVAIA	LAIGYLAVAKEKWTSTALITQPDVGG	IAGYNNAMNVIYQAAAPK	VSDLQETLIGRFS				
O25a\ETEC\ATCC\WzzB	MRVNNVSGQNHDP	EQIDILDLVQLWRGKNTIIISVIVAIA	LAIGYLAVAKEKWTSTALITQPDVGG	IAGYNNAMNVIYQAAAPK	VSDLQETLIGRFS				
O25a:K5:H1\WzzB	MRVNNVSGQNHDP	EQIDILDLVQLWRGKNTIIISVIVAIA	LAIGYLAVAKEKWTSTALITQPDVGG	IAGYNNAMNVIYQAAAPK	VSDLQETLIGRFS				
O25b\2401\WzzB	MRVNNVSGQNHDP	EQIDILDLVQLWRGKNTIIISVIVAIA	LAIGYLAVAKEKWTSTALITQPDVGG	IAGYNNAMNVIYQAAAPK	VSDLQETLIGRFS				
Salmonella\LT2\WzzB	MTVDSNTSSGRGNDP	EQIDILDLVQLWRGKNTIIISVIVAIA	LAIGYLAVAKEKWTSTALITQPDVGG	IAGYNNAMNVIYQAAAPK	VSDLQETLIGRFS				
	110	120	130	140	150	160	170	180	190
K12\W3110\WzzB	SAFSALAE	TLDNQEE	REKLTIEP	SVKNQOLPLTVSYGQ	TAEGCAQMKLAQYIQQVDD	KVNOELEKDK	KNIALGRKNLQDS	LERTQEVV	AEQEQKDLIRQI
O25a\ETEC\ATCC\WzzB	SAFSALAE	TLDNQEE	REKLTIEP	SVKNQOLPLTVSYGQ	TAEGCAQMKLAQYIQQVDD	KVNOELEKDK	KNIALGRKNLQDS	LERTQEVV	AEQEQKDLIRQI
O25a:K5:H1\WzzB	SAFSALAE	TLDNQEE	REKLTIEP	SVKNQOLPLTVSYGQ	TAEGCAQMKLAQYIQQVDD	KVNOELEKDK	KNIALGRKNLQDS	LERTQEVV	AEQEQKDLIRQI
O25b\2401\WzzB	SAFSALAE	TLDNQEE	REKLTIEP	SVKNQOLPLTVSYGQ	TAEGCAQMKLAQYIQQVDD	KVNOELEKDK	KNIALGRKNLQDS	LERTQEVV	AEQEQKDLIRQI
Salmonella\LT2\WzzB	SAFSALAE	TLDNQEE	REKLTIEP	SVKNQOLPLTVSYGQ	TAEGCAQMKLAQYIQQVDD	KVNOELEKDK	KNIALGRKNLQDS	LERTQEVV	AEQEQKDLIRQI
	210	220	230	240	250	260	270	280	290
K12\W3110\WzzB	QEALQYANQAQVTK	POIQQTG	EDITQD	TFLGSE	ALLESMIKHEATRPLV	FSPNYQTRQNLLD	IESLVDDLD	EHAYRYVMK	MLPIRRDSPKKAITLI
O25a\ETEC\ATCC\WzzB	QEALQYANQAQVTK	POIQQTG	EDITQD	TFLGSE	ALLESMIKHEATRPLV	FSPNYQTRQNLLD	IESLVDDLD	EHAYRYVMK	MLPIRRDSPKKAITLI
O25a:K5:H1\WzzB	QEALQYANQAQVTK	POIQQTG	EDITQD	TFLGSE	ALLESMIKHEATRPLV	FSPNYQTRQNLLD	IESLVDDLD	EHAYRYVMK	MLPIRRDSPKKAITLI
O25b\2401\WzzB	QEALQYANQAQVTK	POIQQTG	EDITQD	TFLGSE	ALLESMIKHEATRPLV	FSPNYQTRQNLLD	IESLVDDLD	EHAYRYVMK	MLPIRRDSPKKAITLI
Salmonella\LT2\WzzB	EEALRYADEAKITQ	POIQQT-EDVTQ	DTLFLGSE	ALLESMIKHEATRPLV	FSPNYQTRQNLLD	IESLVDDLD	EHAYRYVMK	MLPIRRDSPKKAITLI	
	310	320							
K12\W3110\WzzB	LAVLLG	MGVAGIVLGR	NALRNYNAK*-	(SEQ ID NO: 23)					
O25a\ETEC\ATCC\WzzB	LAVLLG	MGVAGIVLGR	NALRNYNAK*-	(SEQ ID NO: 22)					
O25a:K5:H1\WzzB	LAVLLG	MGVAGIVLGR	NALRNYNAK*-	(SEQ ID NO: 21)					
O25b\2401\WzzB	LAVLLG	MGVAGIVLGR	NALRNYNAK*-	(SEQ ID NO: 20)					
Salmonella\LT2\WzzB	LAVLLG	MGVAGIVLGR	NALRNYNAK*-	(SEQ ID NO: 24)					

FIG. 3A

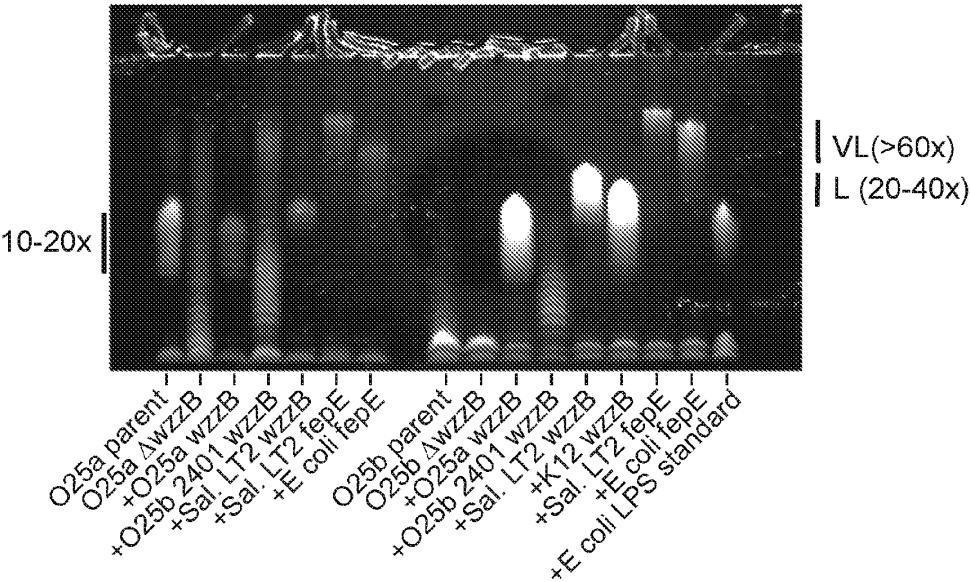


FIG. 3B

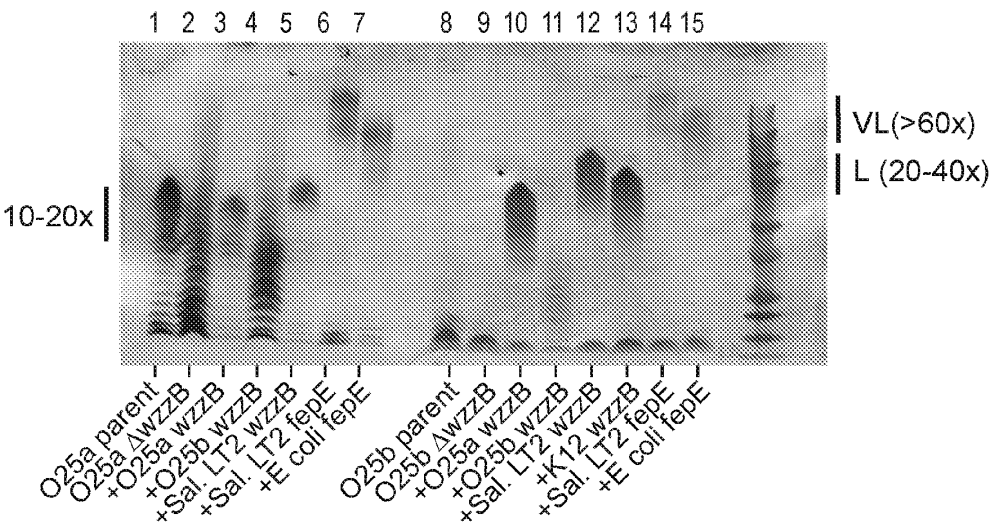


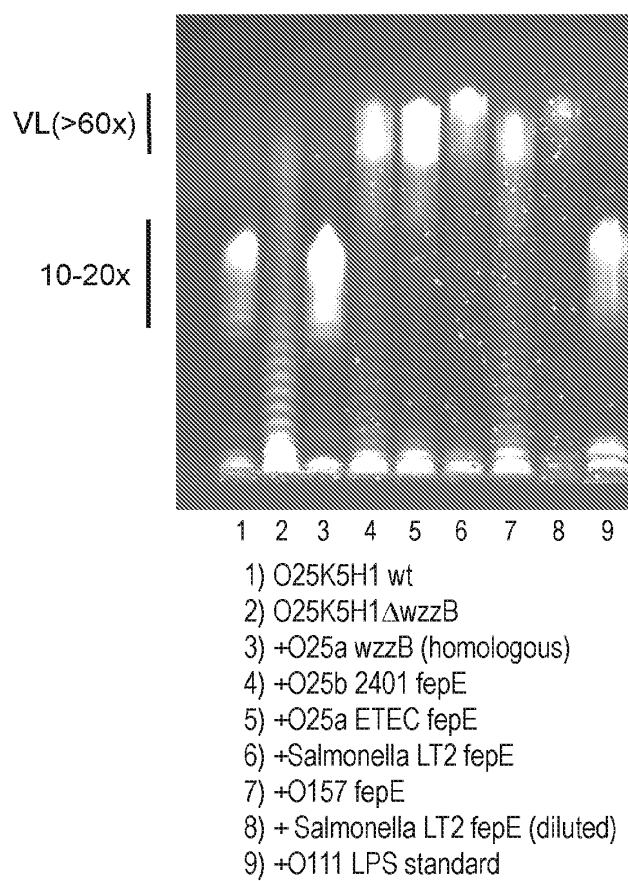
FIG. 4

FIG. 5

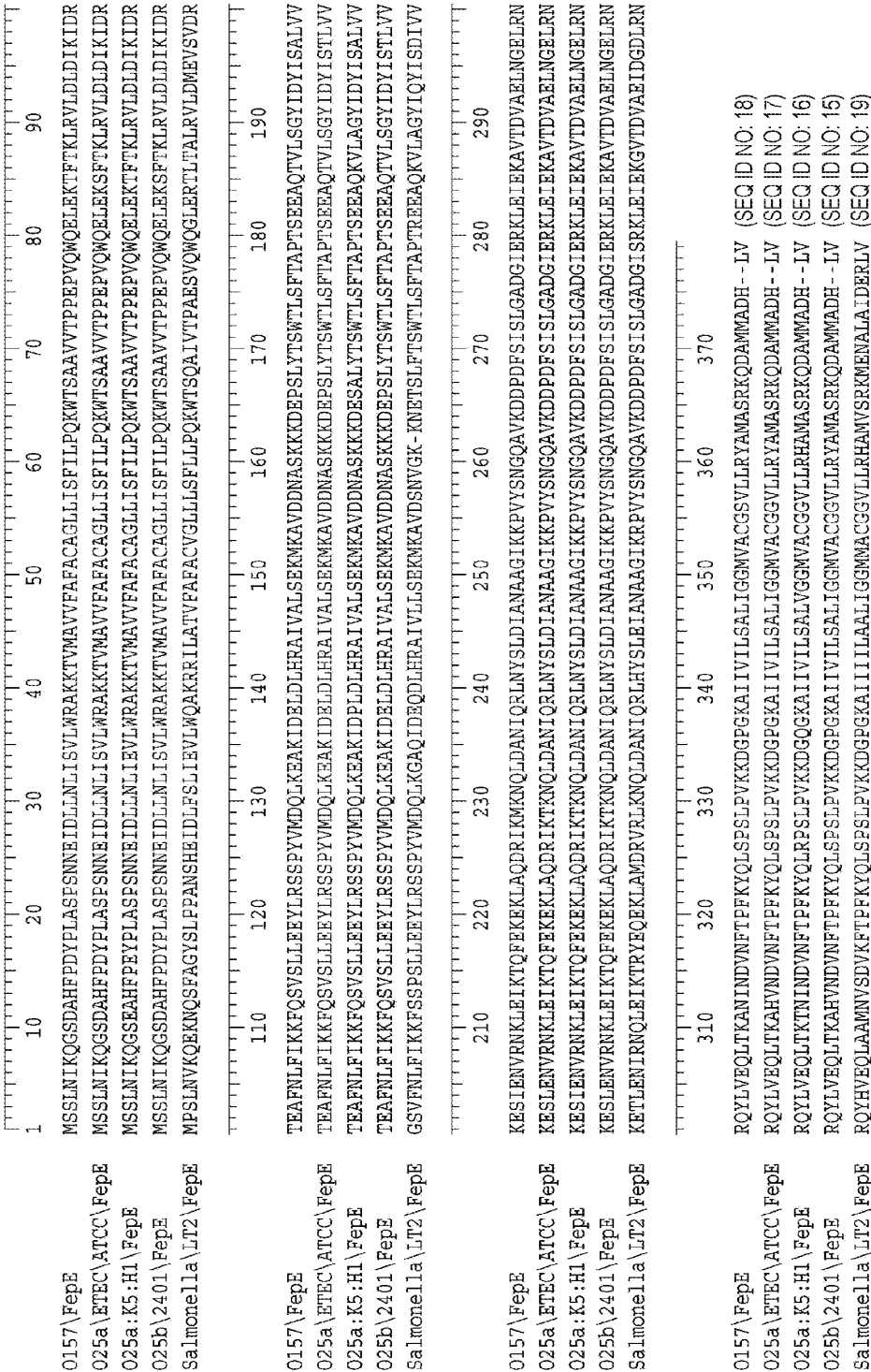


FIG. 6

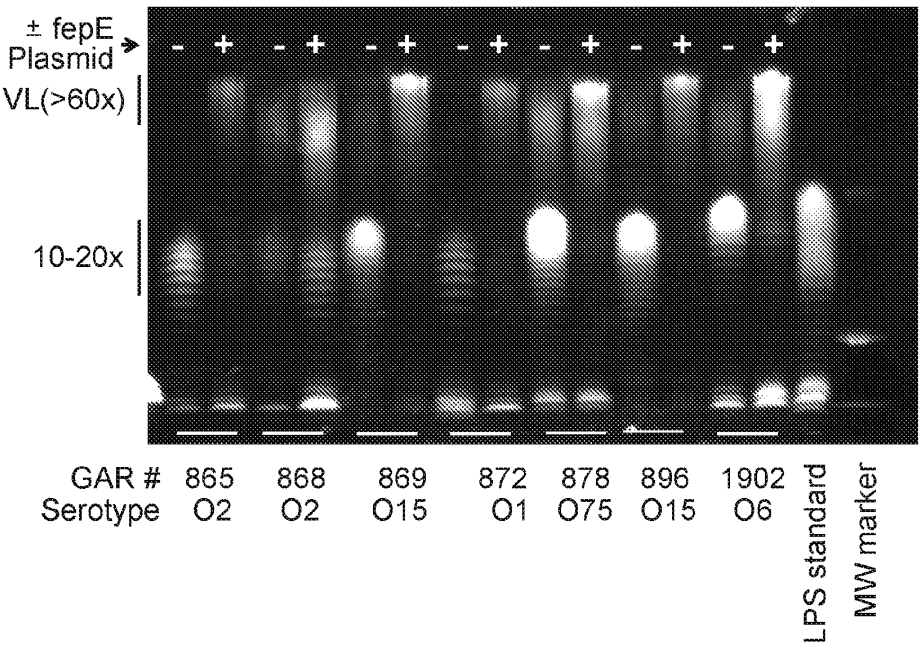


FIG. 7A

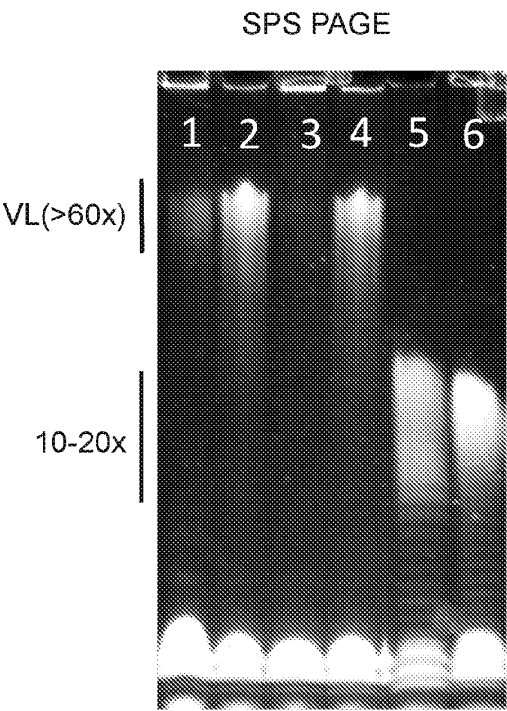


FIG. 7B

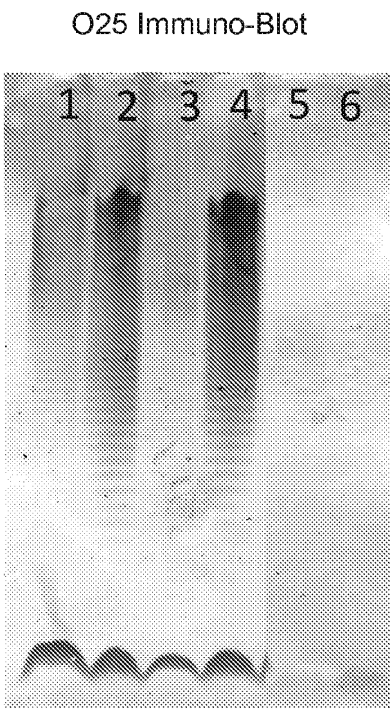


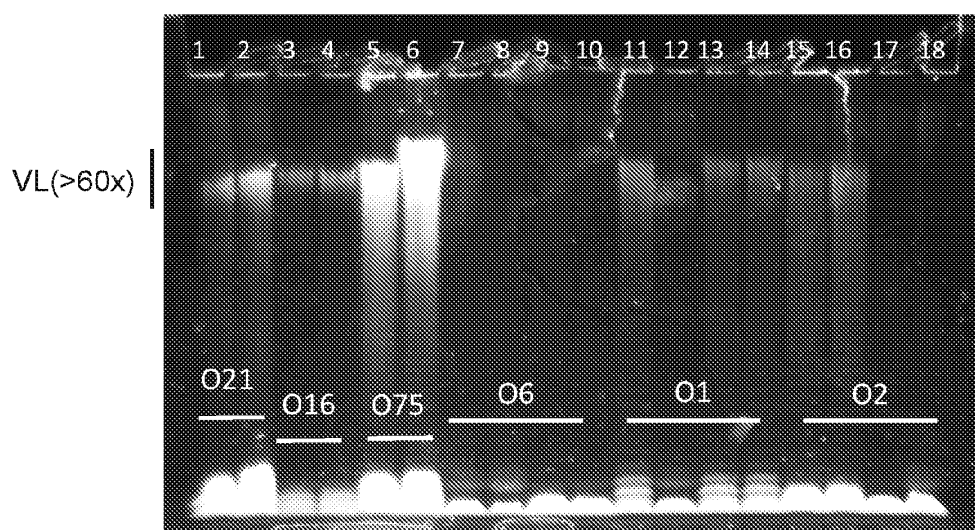
FIG. 8

FIG. 9A

Serogroup	Structure
O1A, O1A1	→3)-α-L-Rha-(1→3)-α-L-Rha-(1→3)-β-L-Rha-(1→4)-β-D-GlcNAc-(1→ β-D-ManNAc-(1→2)
O1B	→3)-α-L-Rha-(1→2)-α-L-Rha-(1→2)-α-D-Gal-(1→3)-β-D-GlcNAc-(1→ β-D-ManNAc-(1→2)
O1C	→3)-α-L-Rha-(1→2)-α-L-Rha-(1→3)-α-D-Gal-(1→3)-β-D-GlcNAc-(1→ β-D-ManNAc-(1→2)
O2	→3)-α-L-Rha-(1→2)-α-L-Rha-(1→3)-β-L-Rha-(1→4)-β-D-GlcNAc-(1→ α-D-Fuc3NAc-(1→2)
O3	β-L-RhaNAc(1→4)α-D-Glc(1→4) →3)-β-D-GlcNAc-(1→3)-α-D-Gal-(1→3)-β-D-GlcNAc-(1→2)
O4:K52	→2)-α-L-Rha-(1→6)-α-D-Glc(1→3)-α-L-FucNAc-(1→3)-β-D-GlcNAc(1→
O4:K6	α-D-Glc(1→3) →2)-α-L-Rha-(1→6)-α-D-Glc(1→3)-α-L-FucNAc-(1→3)-β-D-GlcNAc(1→
O5ab	→4)-β-D-Qui3NAc-(1→3)-β-D-Ribf-(1→4)-β-D-Gal-(1→3)-α-D-GalNAc(1→
O5ac(strain 180/C3)	→2)-β-D-Qui3NAc-(1→3)-β-D-Ribf-(1→4)-β-D-Gal-(1→3)-α-D-GalNAc(1→
O6:K2, K13, K15	→4)-α-D-GalNAc-(1→3)-β-D-Man-(1→4)-β-D-Man-(1→3)-α-D-GlcNAc-(1→ β-D-Glc-(1→2)
O6:K54	→4)-α-D-GalNAc-(1→3)-β-D-Man-(1→4)-β-D-Man-(1→3)-α-D-GlcNAc-(1→ β-D-GlcNAc-(1→2)
O7	α-L-Rha-(1→3) →3)-β-D-Qui4NAc-(1→2)-α-D-Man-(1→4)-β-D-Gal-(1→3)-α-D-GlcNAc-(1→
O10	→3)-α-L-Rha-(1→3)-α-L-Rha-(1→3)-α-D-Gal-(1→3)-β-D-GlcNAc-(1→ α-D-Fuc4NAcyl-(1→2)
	Acyl=acetyl (60%) or (R)-3-hydroxybutyryl (40%)
O16	→2)-β-D-Galf-(1→6)-α-D-Glc(1→3)-α-L-Rha2Ac-(1→3)-α-D-GlcNAc-(1→
O17	α-D-Glc(1→6) →6)-α-D-Man-(1→2)-α-D-Man-(1→2)-β-D-Man-(1→3)-α-D-GlcNAc(1→
O18A, O18ac	→2)-α-L-Rha-(1→6)-α-D-Glc(1→4)-α-D-Gal-(1→3)-α-D-GlcNAc-(1→ β-D-GlcNAc-(1→3)
O18A1	α-D-Glc(1→6) →2)-α-L-Rha-(1→6)-α-D-Glc(1→4)-α-D-Gal(1→3)-α-D-GlcNAc-(1→ β-D-GlcNAc(1→3)
O18B	→3)-α-L-Rha-(1→6)-α-D-Glc(1→4)-α-D-Gal-(1→3)-α-D-GlcNAc-(1→ β-D-Glc-(1→3)
O18B1	α-D-Glc(1→4) →3)-α-L-Rha-(1→6)-α-D-Glc(1→4)-α-D-Gal-(1→3)-α-D-GlcNAc-(1→ β-D-Glc-(1→3)
O21	β-D-Gal-(1→4) →3)-β-D-Gal-(1→4)-β-D-Glc(1→3)-β-D-GalNAc-(1→ β-D-GlcNAc-(1→2)
O23A	α-D-Glc(1→6) →6)-α-D-Glc(1→4)-β-D-Gal-(1→3)-α-D-GalNAc-(1→3)-β-D-GlcNAc-(1→ β-D-GlcNAc(1→3)
O24	→7)-α-Neu5Ac-(2→3)-β-D-Glc-(1→3)-β-D-GalNAc-(1→ α-D-Glc-(1→2)

FIG. 9B continued

O73 (Strain 73-1) a-D-Glc-(1 → 3)-a-D-Man-(1 → 2)-a-D-Man-(1 → 2)-b-D-Man-(1 → 3)-a-D-GalNAc(1 →
 O75 b-D-Man-(1 → 4)-a-D-Gal-(1 → 4)-a-L-Rha-(1 → 3)-b-D-GlcNAc-(1 →
 O77 → 6)-a-D-Man-(1 → 2)-a-D-Man-(1 → 2)-b-D-Man-(1 → 3)-a-D-GlcNAc(1 →
 O78 → 4)-b-D-GlcNAc-(1 → 4)-b-D-Man-(1 → 4)-a-D-Man-(1 → 3)-b-D-GlcNAc-(1 →
 O86 a-D-Gal-(1 → 3)-a-L-Fuc-(1 → 2)-b-D-Gal-(1 → 3)-a-D-GalNAc-(1 → 3)-b-D-GalNAc-(1 →
 O88 a-L-6dTal-(1 → 4)-a-D-Man-(1 → 3)-a-D-Man-(1 → 3)-b-D-GlcNAc-(1 →
 O90 → 4)-a-L-Fuc2/3Ac-(1 → 2)-b-D-Gal-(1 → 3)-a-D-GalNAc-(1 → 3)-b-D-GalNAc-(1 →
 O98 → 3)-a-L-QuilNAc-(1 → 4)-a-D-GalNAcA-(1 → 3)-a-L-QuilNAc-(1 → 3)-b-D-GlcNAc-(1 →
 O104 → 4)-a-D-Gal-(1 → 4)-a-Neu5,7,9Ac3(2 → 3)-b-D-Gal-(1 → 3)-b-D-GalNAc-(1 →
 O111 a-Col-(1 → 6)-a-D-Glc-(1 → 4)-a-D-Gal-(1 → 3)-b-D-GlcNAc-(1 → 3)-a-Col-(1 → 3)
 O113 → 4)-a-D-GalNAc-(1 → 4)-a-D-GalA-(1 → 3)-a-D-Gal-(1 → 3)-b-D-GlcNAc-(1 → 3)-b-D-Gal-(1 → 3)
 O114 → 4)-b-D-Quil3N(N-acetyl-L-seryl)-(1 → 3)-b-D-Ribf-(1 → 4)-b-D-Gal-(1 → 3)-a-D-GlcNAc(1 →

FIG. 10A

O22	→6)-α-D-Glc-(1→4)-β-D-GlcA-(1→4)-β-D-GalNAc3Ac-(1→3)-α-D-Gal-(1→3)-β-D-GalNAc-(1→
O35	→3)-α-L-Rha-(1→2)-α-L-Rha-(1→3)-α-L-Rha-(1→3)-β-D-GlcNAc-(1→ α-D-GalNAcA6N-(1→2)
O65	→2)-β-D-Qui3NAc-(1→4)-α-D-GalA6N-(1→4)-α-D-GalNAc-(1→4)-β-D-GalA-(1→3)-α-D-GlcNAc-(1→
O66	→2)-β-D-Man-(1→3)-α-D-GlcNAc-(1→2)-β-D-Glc3Ac-(1→3)-α-L-6dTal-(1→3)-α-D-GlcNAc(1→
O83	→6)-α-D-Glc-(1→4)-β-D-GlcA-(1→6)-β-D-Gal-(1→4)-β-D-Gal-(1→4)-β-D-GlcNAc-(1→
O91	→4)-α-D-Qui3NAcyl-(1→4)-β-D-Gal-(1→4)-β-D-GlcNAc-(1→4)-β-D-GlcA6NGly-(1→3)-β-D-GlcNAc-(1→Acyl)=(R)-3-hydroxybutynyl
O105	β-D-Ribf-(1→3) →4)-α-D-GlcA2Ac3Ac-(1→2)-α-L-Rha4Ac-(1→3)-β-L-Rha-(1→4)-β-L-Rha-(1→3)-β-D-GlcNAc6Ac-(1→
O116	→2)-β-D-Qui4NAc-(1→6)-α-D-GlcNAc-(1→4)-α-D-GalNAc-(1→4)-α-D-GalA-(1→3)-β-D-GlcNAc-(1→
O117	→4)-β-D-GalNAc-(1→3)-α-L-Rha-(1→4)-α-D-Glc-(1→4)-β-D-Gal-(1→3)-α-D-GalNAc-(1→
O139	β-D-Glc-(1→3) →3)-α-L-Rha-(1→4)-α-D-GalA-(1→2)-α-L-Rha-(1→3)-α-L-Rha-(1→3)-α-D-GlcNAc-(1→
O153	→2)-β-D-Ribf-(1→4)-β-D-Gal-(1→4)-α-D-GlcNAc-(1→4)-β-D-Gal-(1→3)-α-D-GlcNAc-(1→Ratnayake (1994a)
O167	α-D-Galf-(1→4) →2)-β-D-GalA6N(L)Ala-(1→3)-α-D-GlcNAc-(1→2)-β-D-Galf-(1→5)-β-D-Galf-(1→3)-β-D-GlcNAc-(1→
O172	→3)-α-L-FucNAc-(1→4)-α-D-Glc6Ac-(1-P→4)-α-D-Glc-(1→3)-α-L-FucNAc-(1→3)-α-D-GlcNAc-(1→

FIG. 10B

O8	→2)-α-D-Man-(1→2)-α-D-Man-(1→3)-β-D-Man-(1→
O9a	→2)-α-D-Man-(1→2)-α-D-Man-(1→3)-α-D-Man-(1→3)-α-D-Man-(1→
O9	→2)-[α-D-Man-(1→2)]2-α-D-Man-(1→3)-α-D-Man-(1→3)-α-D-Man-(1→
O20ab	→2)-β-D-Ribf-(1→4)-α-D-Gal-(1→ Vasil'ev & Zakharova (1976)
O20ac	α-D-Gal-(1→3) →2)-β-D-Ribf-(1→4)-α-D-Gal-(1→
O52	→3)-β-D-Fucf-(1→3)-β-D-6dmanHep2Ac-(1→
O97	→3)-α-L-Rha-(1→3)-β-L-Rha-(1→ β-D-Xulf-(2→2)β-D-Xulf-(2→2)
O101	→6)-α-D-GlcNAc-(1→4)-α-D-GalNAc-(1→

FIG. 11

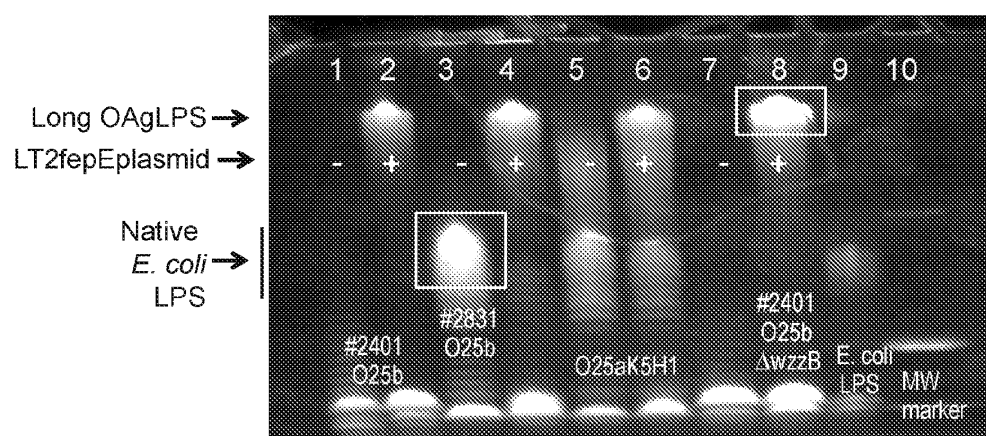


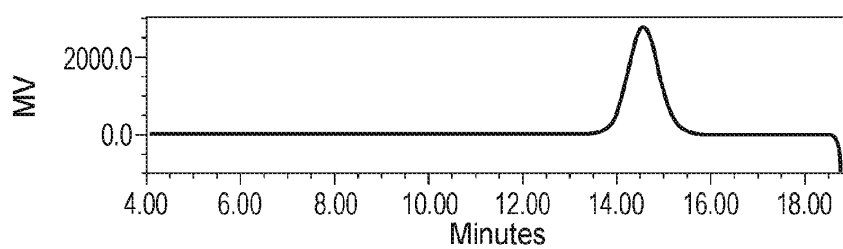
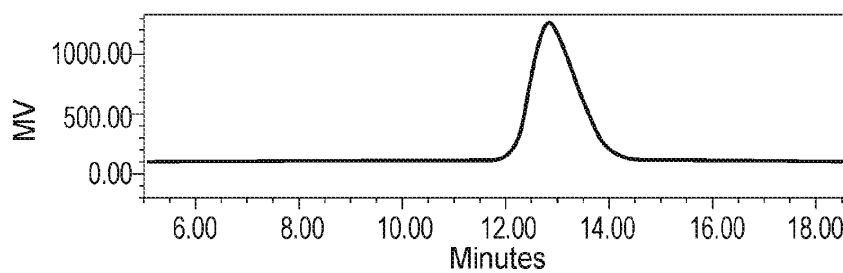
FIG. 12A**FIG. 12B**

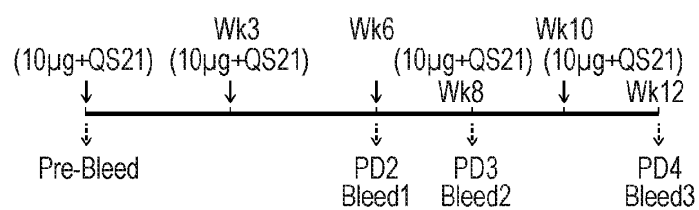
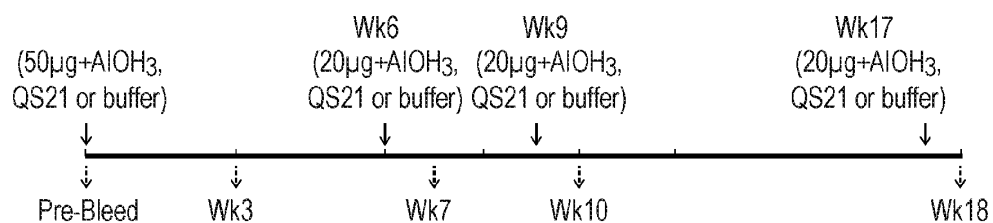
FIG. 13A**FIG. 13B**

FIG. 14A

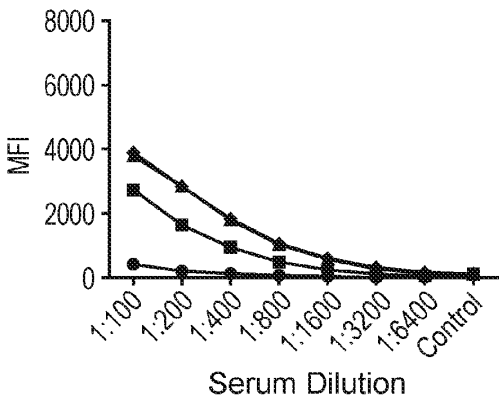


FIG. 14B

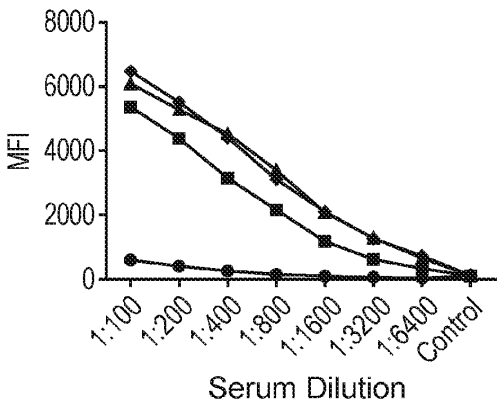


FIG. 14C

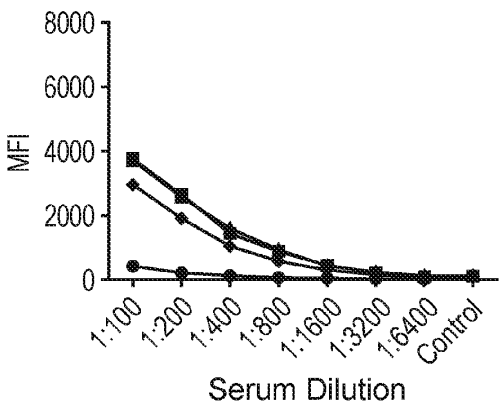


FIG. 15A

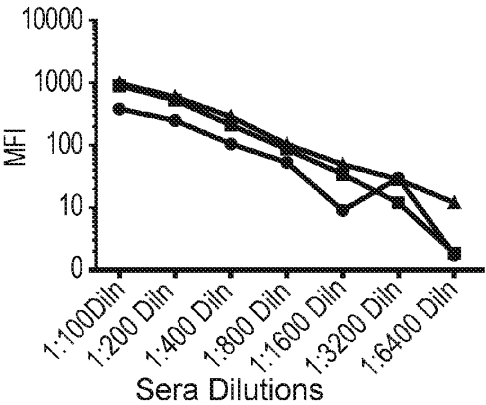


FIG. 15B

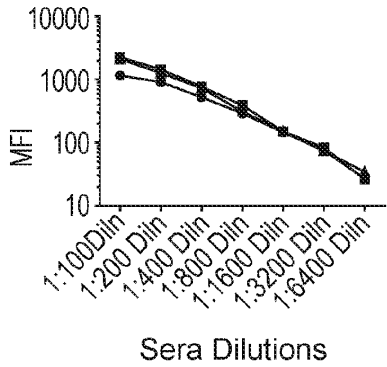


FIG. 15C

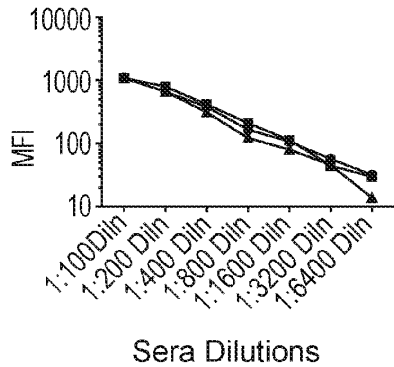


FIG. 15D

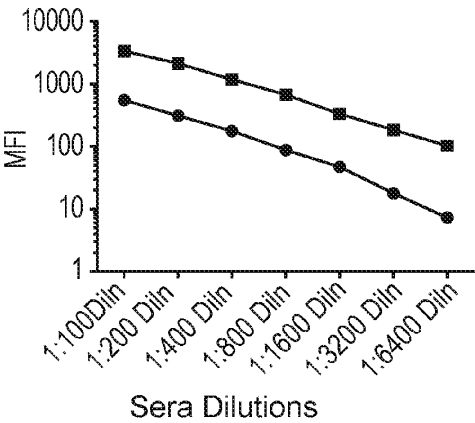


FIG. 15E

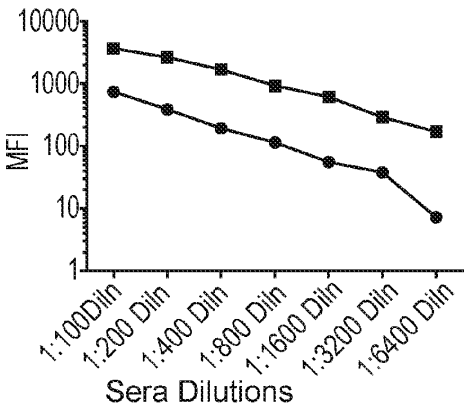


FIG. 15F

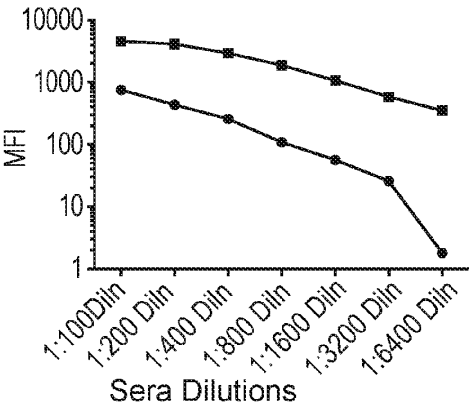


FIG. 16A

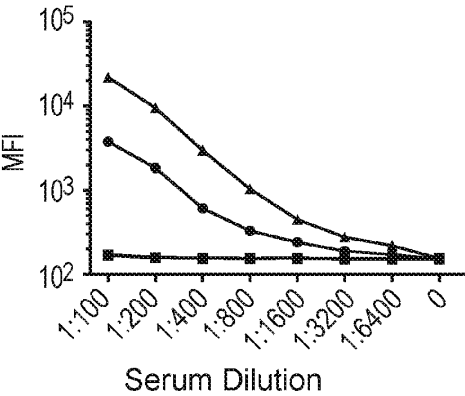


FIG. 16B

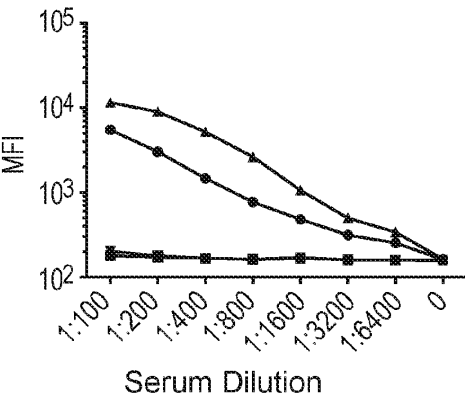


FIG. 16C

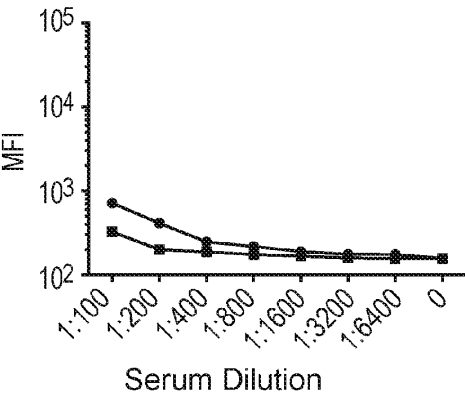


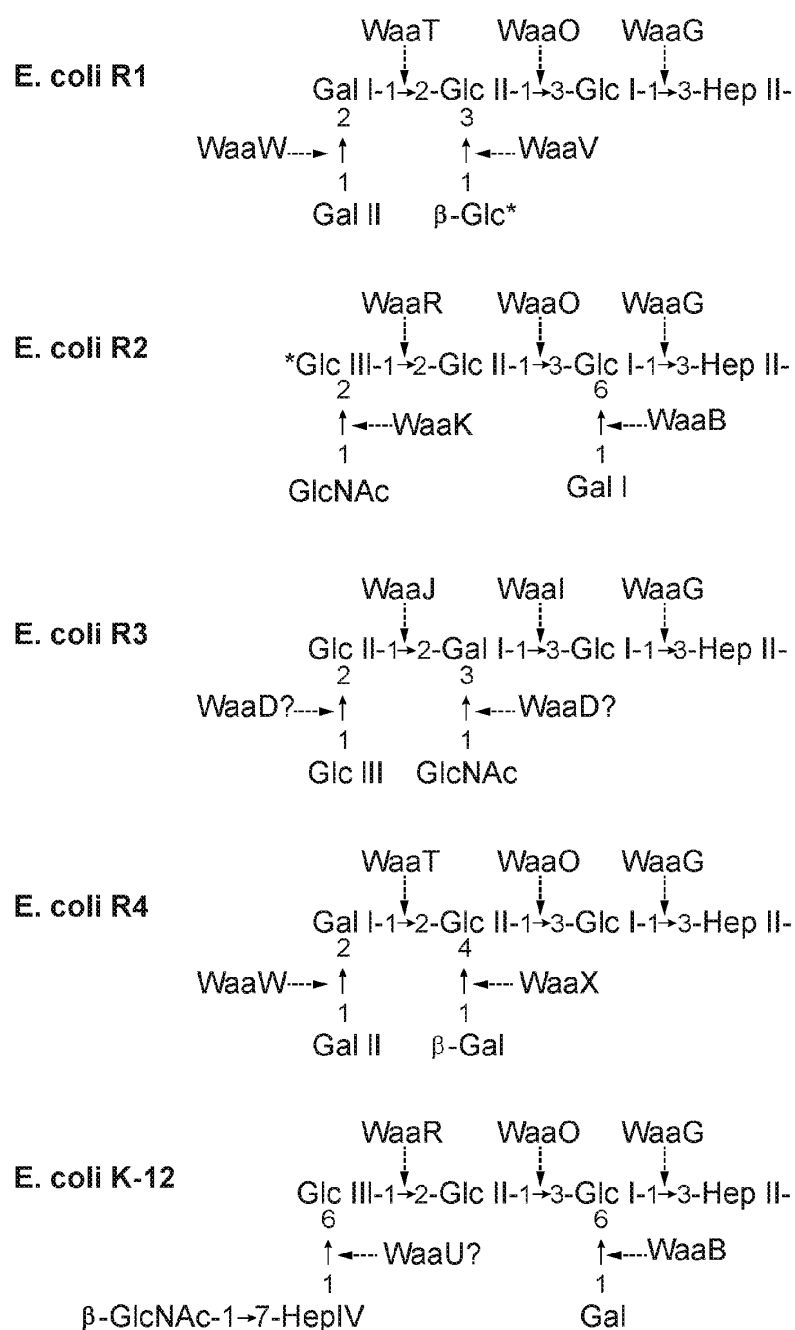
FIG. 17

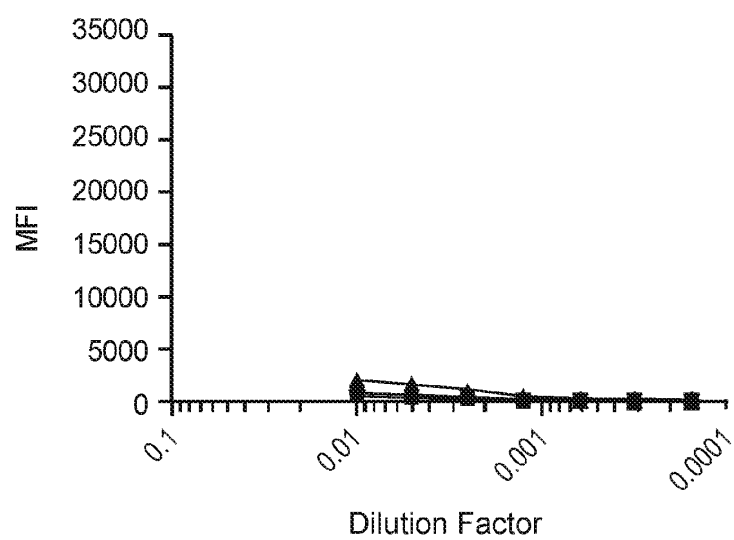
FIG. 18

FIG. 19A

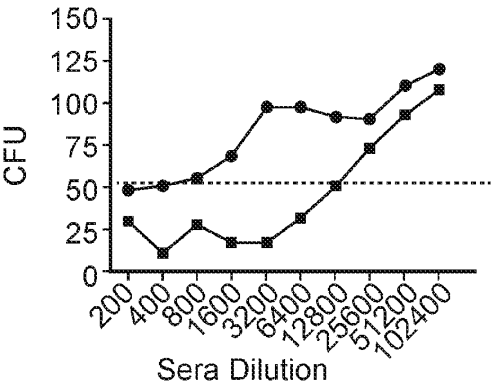


FIG. 19B

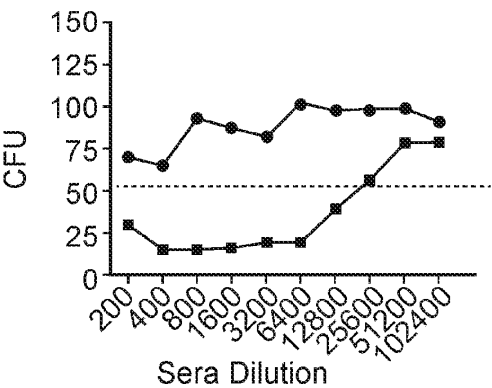


FIG. 19C

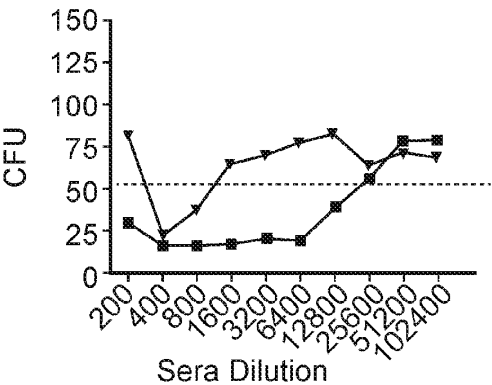


FIG. 20A

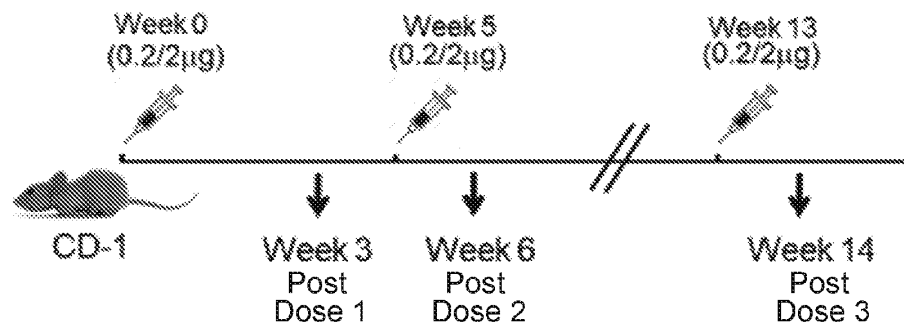


FIG. 20B

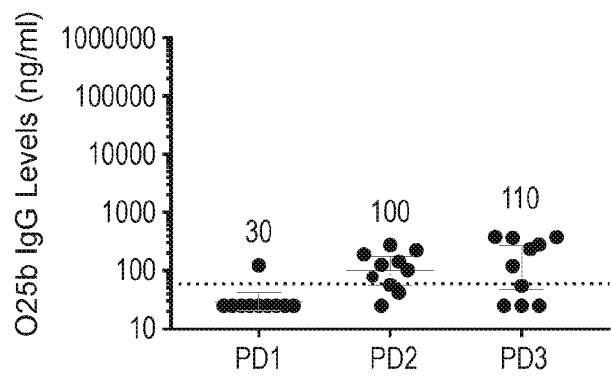


FIG. 20C

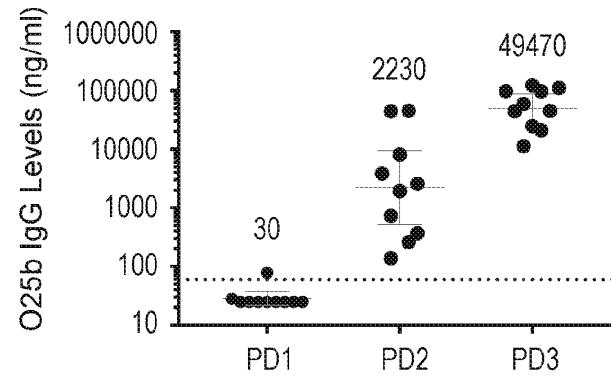


FIG. 21A

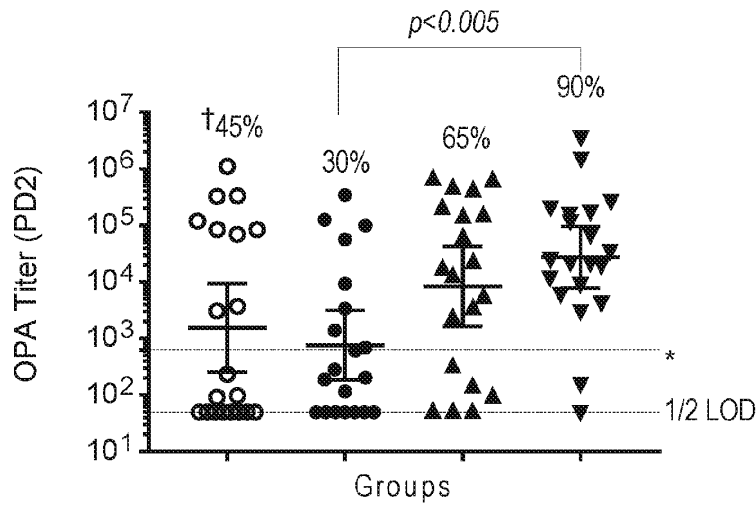


FIG. 21B

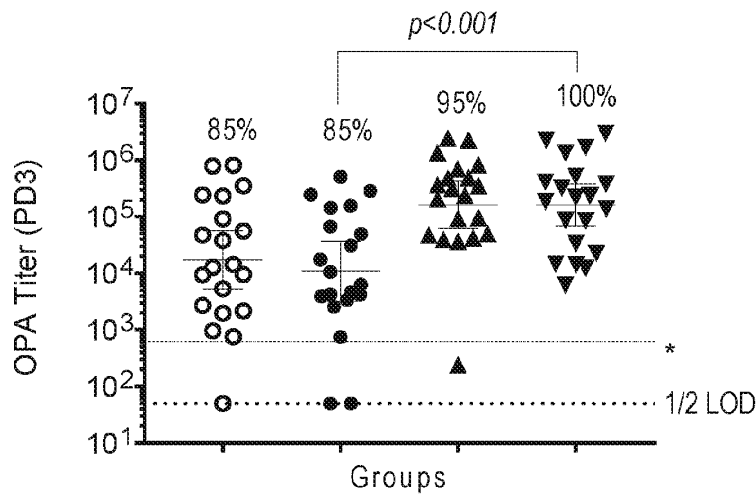


FIG. 22

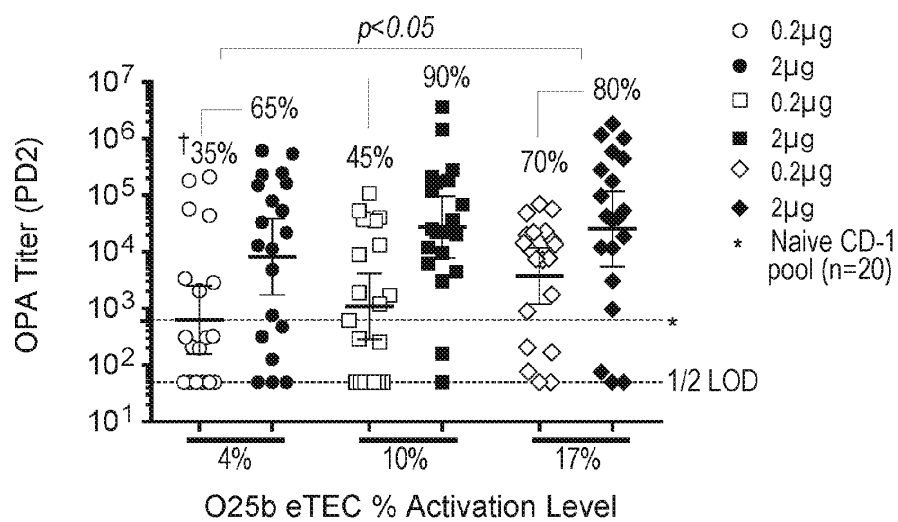


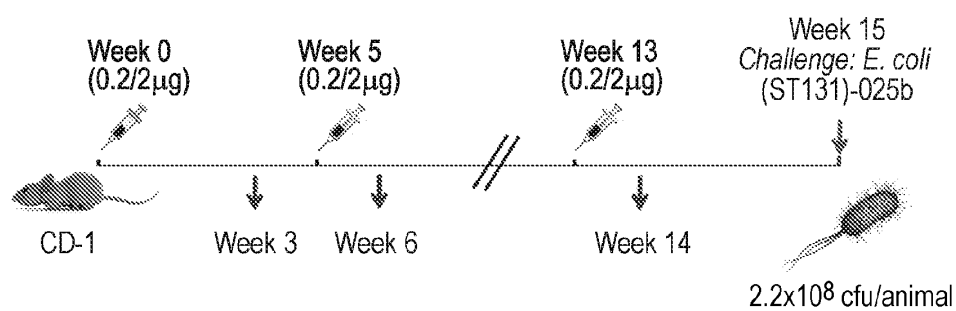
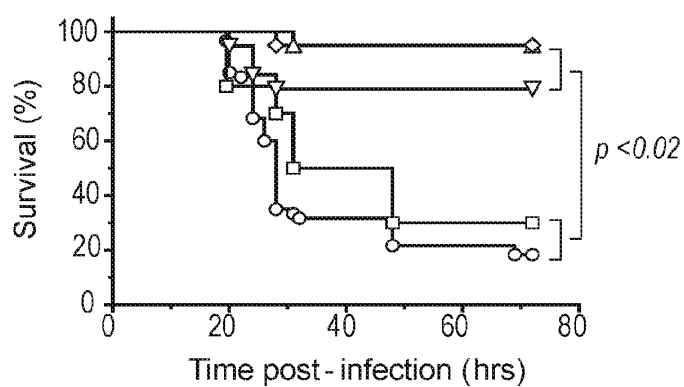
FIG. 23A**FIG. 23B**

FIG. 24

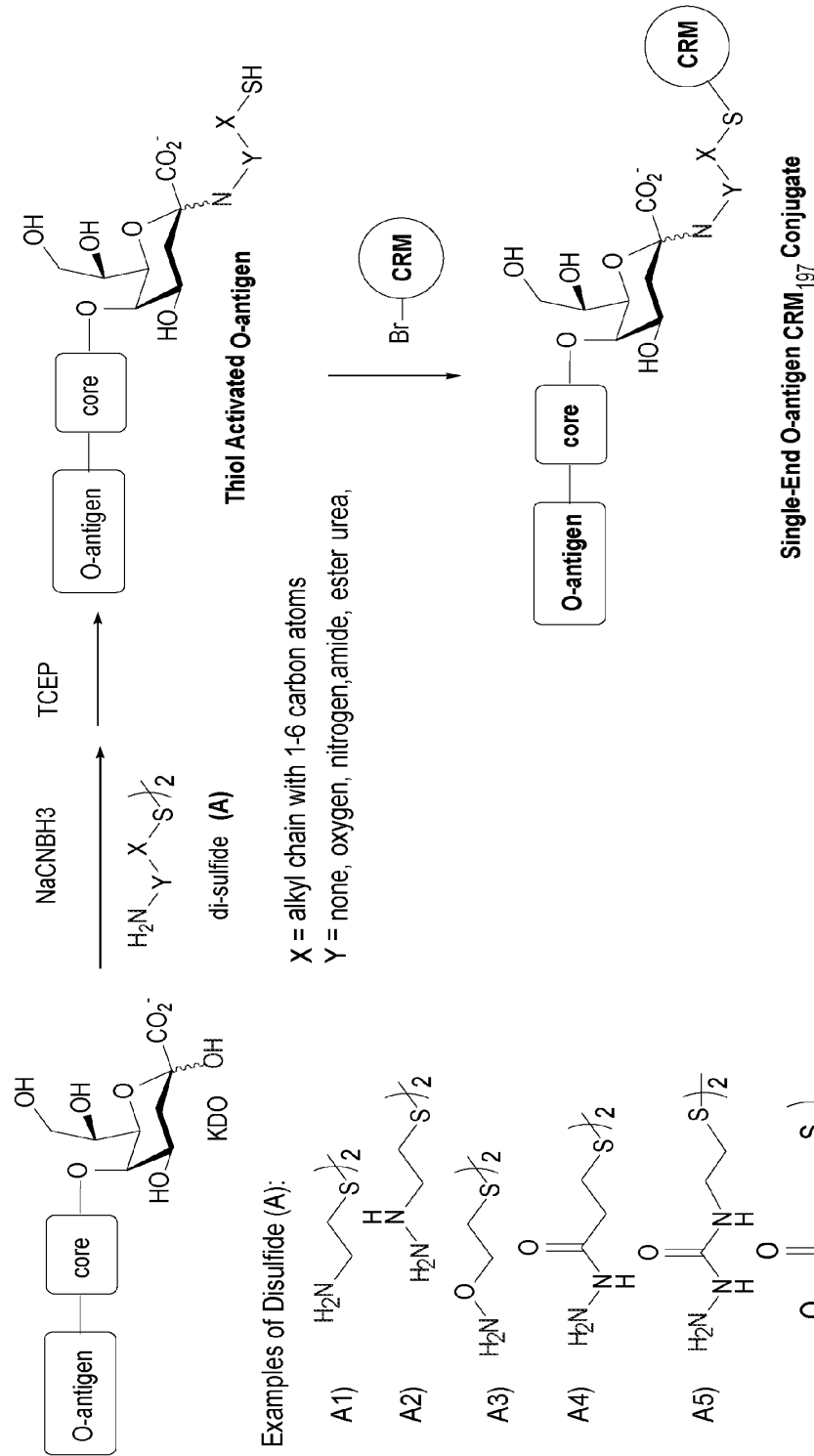
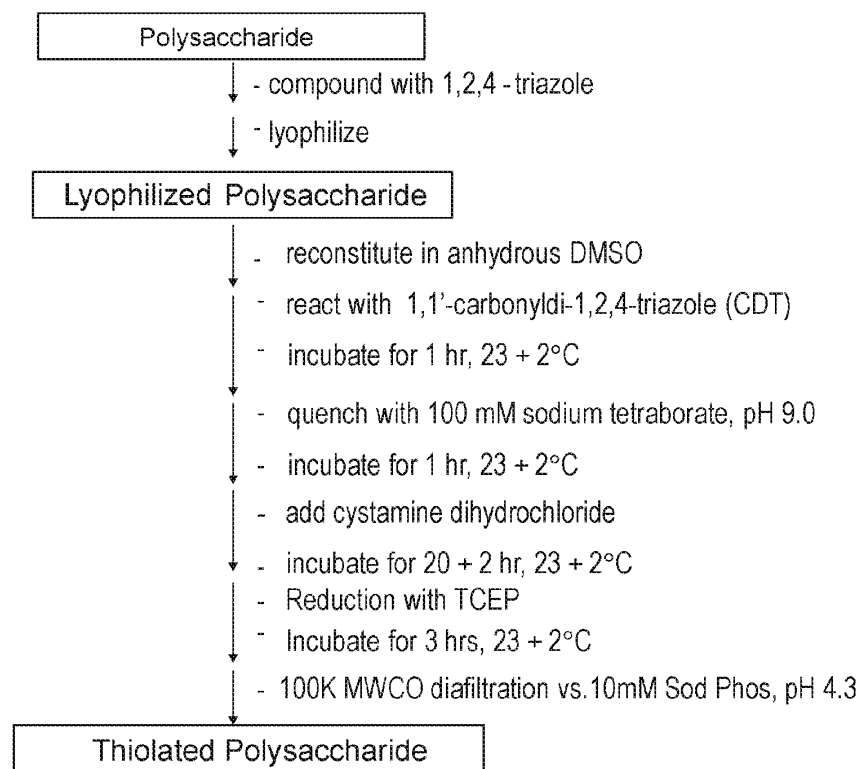


FIG. 25A**FIG. 25B**