

00930486
SEQUENCE LISTING

<110> GlycoVaxyn AG
Janssen Pharmaceuticals, Inc.

<120> METHODS AND COMPOSITIONS FOR IMMUNE PROTECTION AGAINST
EXTRA-INTESTINAL PATHOGENIC E. COLI

<130> 688097-86W0

<150> US 62/209,091
<151> 2015-08-24

<150> US 62/210,655
<151> 2015-08-27

<160> 3

<170> PatentIn version 3.5

<210> 1
<211> 652
<212> PRT
<213> Artificial Sequence

<220>
<223> Detoxified EPA protein comprising 4 optimized N-glycosylation
sequences

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Gly Ser Gly Gly Gly Asp Gln Asn Ala Thr Gly Ser Gly Gly Gly Lys
1 5 10 15

Leu Ala Glu Glu Ala Phe Asp Leu Trp Asn Glu Cys Ala Lys Ala Cys
20 25 30

Val Leu Asp Leu Lys Asp Gly Val Arg Ser Ser Arg Met Ser Val Asp
35 40 45

Pro Ala Ile Ala Asp Thr Asn Gly Gln Gly Val Leu His Tyr Ser Met
50 55 60

Val Leu Glu Gly Gly Asn Asp Ala Leu Lys Leu Ala Ile Asp Asn Ala

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65		70		75		80
Leu Ser Ile Thr	Ser Asp Gly Leu Thr	Ile Arg Leu Glu Gly Gly Val				
	85	90			95	
Glu Pro Asn Lys	Pro Val Arg Tyr	Ser Tyr Thr Arg Gln Ala Arg Gly				
	100	105			110	
Ser Trp Ser Leu	Asn Trp Leu Val	Pro Ile Gly His Glu Lys Pro Ser				
	115	120			125	
Asn Ile Lys Val	Phe Ile His Glu Leu Asn Ala Gly Asn Gln Leu Ser					
	130	135			140	
His Met Ser Pro	Ile Tyr Thr Ile Glu Met Gly Asp Glu Leu Leu Ala					
145	150	155			160	
Lys Leu Ala Arg	Asp Ala Thr Phe Phe Val Arg Ala His Glu Ser Asn					
	165	170			175	
Glu Met Gln Pro	Thr Leu Ala Ile Ser His Ala Gly Val Ser Val Val					
	180	185			190	
Met Ala Gln Ala	Gln Pro Arg Arg Glu Lys Arg Trp Ser Glu Trp Ala					
	195	200			205	
Ser Gly Lys Val	Leu Cys Leu Leu Asp Pro Leu Asp Gly Val Tyr Asn					
	210	215			220	
Tyr Leu Ala Gln	Gln Arg Cys Asn Leu Asp Asp Thr Trp Glu Gly Lys					
225	230	235			240	
Ile Tyr Arg Val	Leu Ala Gly Asn Pro Ala Lys His Asp Leu Asp Ile					
	245	250			255	
Lys Asp Asn Asn	Asn Ser Thr Pro Thr Val Ile Ser His Arg Leu His					

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260

265

270

Phe Pro Glu Gly Gly Ser Leu Ala Ala Leu Thr Ala His Gln Ala Cys
275 280 285

His Leu Pro Leu Glu Ala Phe Thr Arg His Arg Gln Pro Arg Gly Trp
290 295 300

Glu Gln Leu Glu Gln Cys Gly Tyr Pro Val Gln Arg Leu Val Ala Leu
305 310 315 320

Tyr Leu Ala Ala Arg Leu Ser Trp Asn Gln Val Asp Gln Val Ile Arg
325 330 335

Asn Ala Leu Ala Ser Pro Gly Ser Gly Gly Asp Leu Gly Glu Ala Ile
340 345 350

Arg Glu Gln Pro Glu Gln Ala Arg Leu Ala Leu Thr Leu Ala Ala Ala
355 360 365

Glu Ser Glu Arg Phe Val Arg Gln Gly Thr Gly Asn Asp Glu Ala Gly
370 375 380

Ala Ala Ser Ala Asp Val Val Ser Leu Thr Cys Pro Val Ala Lys Asp
385 390 395 400

Gln Asn Arg Thr Lys Gly Glu Cys Ala Gly Pro Ala Asp Ser Gly Asp
405 410 415

Ala Leu Leu Glu Arg Asn Tyr Pro Thr Gly Ala Glu Phe Leu Gly Asp
420 425 430

Gly Gly Asp Val Ser Phe Ser Thr Arg Gly Thr Gln Asn Trp Thr Val
435 440 445

Glu Arg Leu Leu Gln Ala His Arg Gln Leu Glu Glu Arg Gly Tyr Val

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450

455

460

Phe Val Gly Tyr His Gly Thr Phe Leu Glu Ala Ala Gln Ser Ile Val
465 470 475 480

Phe Gly Gly Val Arg Ala Arg Ser Gln Asp Leu Asp Ala Ile Trp Arg
485 490 495

Gly Phe Tyr Ile Ala Gly Asp Pro Ala Leu Ala Tyr Gly Tyr Ala Gln
500 505 510

Asp Gln Glu Pro Asp Ala Arg Gly Arg Ile Arg Asn Gly Ala Leu Leu
515 520 525

Arg Val Tyr Val Pro Arg Trp Ser Leu Pro Gly Phe Tyr Arg Thr Gly
530 535 540

Leu Thr Leu Ala Ala Pro Glu Ala Ala Gly Glu Val Glu Arg Leu Ile
545 550 555 560

Gly His Pro Leu Pro Leu Arg Leu Asp Ala Ile Thr Gly Pro Glu Glu
565 570 575

Glu Gly Gly Arg Val Thr Ile Leu Gly Trp Pro Leu Ala Glu Arg Thr
580 585 590

Val Val Ile Pro Ser Ala Ile Pro Thr Asp Pro Arg Asn Val Gly Gly
595 600 605

Asp Leu Asp Pro Ser Ser Ile Pro Asp Lys Glu Gln Ala Ile Ser Ala
610 615 620

Leu Pro Asp Tyr Ala Ser Gln Pro Gly Lys Pro Pro Arg Glu Asp Leu
625 630 635 640

Lys Leu Gly Ser Gly Gly Gly Asp Gln Asn Ala Thr

645

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<210> 2
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<213> Artificial Sequence

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<222> (3)..(3)

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Asn Xaa Xaa
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<212> PRT
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<223> N-glycosylation consensus sequence

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<221> Ser or Thr

<222> (5)..(5)

<400> 3

Xaa Xaa Asn Xaa Xaa

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