

SEQUENCE LISTING

<110> Sackstein, Robert

<120> GLYCOENGINEERING OF E-SELECTIN LIGANDS

<130> C077747/0546300pct

<150> US 62/339,704

<151> 2016-05-20

<150> US 62/354,350

<151> 2016-06-24

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<170> PatentIn version 3.5

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Ser Gly Ser Ser Arg Gln Asp Thr Thr Pro Thr Arg Pro Thr Leu Leu
50 55 60

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Cys Ser Glu Met Val Pro Gly Thr Ala Asp Cys His Ile Thr Ala Asp
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Arg Lys Val Tyr Pro Gln Ala Asp Thr Val Ile Val His His Trp Asp
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Ile Met Ser Asn Pro Lys Ser Arg Leu Pro Pro Ser Pro Arg Pro Gln
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Gly Gln Arg Trp Ile Trp Phe Asn Leu Glu Pro Pro Pro Asn Cys Gln
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His Leu Glu Ala Leu Asp Arg Tyr Phe Asn Leu Thr Met Ser Tyr Arg
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Ser Asp Ser Asp Ile Phe Thr Pro Tyr Gly Trp Leu Glu Pro Trp Ser
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Gly Gln Pro Ala His Pro Pro Leu Asn Leu Ser Ala Lys Thr Glu Leu
180 185 190

Val Ala Trp Ala Val Ser Asn Trp Lys Pro Asp Ser Ala Arg Val Arg
195 200 205

Tyr Tyr Gln Ser Leu Gln Ala His Leu Lys Val Asp Val Tyr Gly Arg
210 215 220

Ser His Lys Pro Leu Pro Lys Gly Thr Met Met Glu Thr Leu Ser Arg
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Tyr Lys Phe Tyr Leu Ala Phe Glu Asn Ser Leu His Pro Asp Tyr Ile
245 250 255

Thr Glu Lys Leu Trp Arg Asn Ala Leu Glu Ala Trp Ala Val Pro Val
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Val Leu Gly Pro Ser Arg Ser Asn Tyr Glu Arg Phe Leu Pro Pro Asp
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Ala Phe Ile His Val Asp Asp Phe Gln Ser Pro Lys Asp Leu Ala Arg
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Tyr Leu Gln Glu Leu Asp Lys Asp His Ala Arg Tyr Leu Ser Tyr Phe
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Gly Trp Ala Ser Trp Pro Ala His Leu Ala Leu Ala Ala Arg Pro Ala
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Arg His Leu Gly Gly Ala Gly Gln Gly Pro Arg Pro Leu His Ser Gly
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Thr Ala Pro Phe His Ser Arg Ala Ser Gly Glu Arg Gln Arg Arg Leu
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Glu Pro Gln Leu Gln His Glu Ser Arg Cys Arg Ser Ser Thr Pro Ala
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Asp Ala Trp Arg Ala Glu Ala Ala Leu Pro Val Arg Ala Met Gly Ala
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Pro Trp Gly Ser Pro Thr Ala Ala Ala Gly Gly Arg Arg Gly Trp Arg
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Arg Gly Arg Gly Leu Pro Trp Thr Val Cys Val Leu Ala Ala Ala Gly
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Leu Thr Cys Thr Ala Leu Ile Thr Tyr Ala Cys Trp Gly Gln Leu Pro
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Pro Leu Pro Trp Ala Ser Pro Thr Pro Ser Arg Pro Val Gly Val Leu
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Leu Trp Trp Glu Pro Phe Gly Gly Arg Asp Ser Ala Pro Arg Pro Pro
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Pro Asp Cys Arg Leu Arg Phe Asn Ile Ser Gly Cys Arg Leu Leu Thr
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Asp Arg Ala Ser Tyr Gly Glu Ala Gln Ala Val Leu Phe His His Arg
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Asp Leu Val Lys Gly Pro Pro Asp Trp Pro Pro Pro Trp Gly Ile Gln
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Ala His Thr Ala Glu Glu Val Asp Leu Arg Val Leu Asp Tyr Glu Glu
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Ala Ala Ala Ala Glu Ala Leu Ala Thr Ser Ser Pro Arg Pro Pro
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Gly Gln Arg Trp Val Trp Met Asn Phe Glu Ser Pro Ser His Ser Pro
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Gly Leu Arg Ser Leu Ala Ser Asn Leu Phe Asn Trp Thr Leu Ser Tyr
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Arg Ala Asp Ser Asp Val Phe Val Pro Tyr Gly Tyr Leu Tyr Pro Arg
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Ser His Pro Gly Asp Pro Pro Ser Gly Leu Ala Pro Pro Leu Ser Arg
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Lys Gln Gly Leu Val Ala Trp Val Val Ser His Trp Asp Glu Arg Gln
355 360 365

Ala Arg Val Arg Tyr Tyr His Gln Leu Ser Gln His Val Thr Val Asp
370 375 380

Val Phe Gly Arg Gly Gly Pro Gly Gln Pro Val Pro Glu Ile Gly Leu
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Leu His Thr Val Ala Arg Tyr Lys Phe Tyr Leu Ala Phe Glu Asn Ser
405 410 415

Gln His Leu Asp Tyr Ile Thr Glu Lys Leu Trp Arg Asn Ala Leu Leu
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Ala Gly Ala Val Pro Val Val Leu Gly Pro Asp Arg Ala Asn Tyr Glu
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Arg Phe Val Pro Arg Gly Ala Phe Ile His Val Asp Asp Phe Pro Ser
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Ala Ser Ser Leu Ala Ser Tyr Leu Leu Phe Leu Asp Arg Asn Pro Ala
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Val Tyr Arg Arg Tyr Phe His Trp Arg Arg Ser Tyr Ala Val His Ile
485 490 495

Thr Ser Phe Trp Asp Glu Pro Trp Cys Arg Val Cys Gln Ala Val Gln
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Tyr	Leu	Arg	Val	Ser	Arg	Asp	Asp	Ala	Thr	Gly	Ser	Pro	Arg	Pro	Gly
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Leu Met Ala Val Glu Pro Val Thr Gly Ala Pro Asn Gly Ser Arg Cys
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Gln Asp Ser Met Ala Thr Pro Ala His Pro Thr Leu Leu Ile Leu Leu
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Trp Thr Trp Pro Phe Asn Thr Pro Val Ala Leu Pro Arg Cys Ser Glu
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Met Val Pro Gly Ala Ala Asp Cys Asn Ile Thr Ala Asp Ser Ser Val
100 105 110

Tyr Pro Gln Ala Asp Ala Val Ile Val His His Trp Asp Ile Met Tyr
115 120 125

Asn Pro Ser Ala Asn Leu Pro Pro Pro Thr Arg Pro Gln Gly Gln Arg
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Trp Ile Trp Phe Ser Met Glu Ser Pro Ser Asn Cys Arg His Leu Glu
145 150 155 160

Ala Leu Asp Gly Tyr Phe Asn Leu Thr Met Ser Tyr Arg Ser Asp Ser
165 170 175

Asp Ile Phe Thr Pro Tyr Gly Trp Leu Glu Pro Trp Ser Gly Gln Pro
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Ala His Pro Pro Leu Asn Leu Ser Ala Lys Thr Glu Leu Val Ala Trp
195 200 205

Ala Val Ser Asn Trp Lys Pro Asp Ser Ala Arg Val Arg Tyr Tyr Gln
210 215 220

Ser Leu Gln Ala His Leu Lys Val Asp Val Tyr Gly Arg Ser His Lys
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Pro Leu Pro Lys Gly Thr Met Met Glu Thr Leu Ser Arg Tyr Lys Phe
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Tyr Leu Ala Phe Glu Asn Ser Leu His Pro Asp Tyr Ile Thr Glu Lys
260 265 270

Leu Trp Arg Asn Ala Leu Glu Ala Trp Ala Val Pro Val Val Leu Gly
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Pro Ser Arg Ser Asn Tyr Glu Arg Phe Leu Pro Pro Asp Ala Phe Ile
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His Val Asp Asp Phe Gln Ser Pro Lys Asp Leu Ala Arg Tyr Leu Gln
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Glu Leu Asp Lys Asp His Ala Arg Tyr Leu Ser Tyr Phe Arg Trp Arg
325 330 335

Glu Thr Leu Arg Pro Arg Ser Phe Ser Trp Ala Leu Ala Phe Cys Lys
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Tyr Leu Arg Val Ser Gln Asp Asp Pro Thr Val Tyr Pro Asn Gly Ser
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Arg Phe Pro Asp Ser Thr Gly Thr Pro Ala His Ser Ile Pro Leu Ile
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Leu Leu Trp Thr Trp Pro Phe Asn Lys Pro Ile Ala Leu Pro Arg Cys
 65 70 75 80

Ser Glu Met Val Pro Gly Thr Ala Asp Cys Asn Ile Thr Ala Asp Arg
 85 90 95

Lys Val Tyr Pro Gln Ala Asp Ala Val Ile Val His His Arg Glu Val
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Met Tyr Asn Pro Ser Ala Gln Leu Pro Arg Ser Pro Arg Arg Gln Gly
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Gln Arg Trp Ile Trp Phe Ser Met Glu Ser Pro Ser His Cys Trp Gln
130 135 140

Leu Lys Ala Met Asp Gly Tyr Phe Asn Leu Thr Met Ser Tyr Arg Ser
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Asp Ser Asp Ile Phe Thr Pro Tyr Gly Trp Leu Glu Pro Trp Ser Gly
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Tyr Gln Ser Leu Gln Ala His Leu Lys Val Asp Val Tyr Gly Arg Ser
210 215 220

His Lys Pro Leu Pro Gln Gly Thr Met Met Glu Thr Leu Ser Arg Tyr
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Lys Phe Tyr Leu Ala Phe Glu Asn Ser Leu His Pro Asp Tyr Ile Thr
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Glu Lys Leu Trp Arg Asn Ala Leu Glu Ala Trp Ala Val Pro Val Val
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Leu Gly Pro Ser Arg Ser Asn Tyr Glu Arg Phe Leu Pro Pro Asp Ala
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Phe Ile His Val Asp Asp Phe Gln Ser Pro Lys Asp Leu Ala Arg Tyr
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305 310 315 320

Trp Arg Glu Thr Leu Arg Pro Arg Ser Phe Ser Trp Ala Leu Ala Phe
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Ile	Leu	Val	Trp	His	Trp	Pro	Phe	Thr	Asp	Gln	Pro	Pro	Glu	Leu	Pro
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Ser	Asp	Thr	Cys	Thr	Arg	Tyr	Gly	Ile	Ala	Arg	Cys	His	Leu	Ser	Ala
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Asn	Arg	Ser	Leu	Leu	Ala	Ser	Ala	Asp	Ala	Val	Val	Phe	His	His	Arg
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Gly Leu Ser His Leu Arg Gly Ile Phe Asn Trp Val Leu Ser Tyr Arg
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Arg Asp Ser Asp Ile Phe Val Pro Tyr Gly Arg Leu Glu Pro His Trp
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Gly Pro Ser Pro Pro Leu Pro Ala Lys Ser Arg Val Ala Ala Trp Val
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Val Ser Asn Phe Gln Glu Arg Gln Leu Arg Ala Arg Leu Tyr Arg Gln
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Leu Ala Pro His Leu Arg Val Asp Val Phe Gly Arg Ala Asn Gly Arg
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Pro Leu Cys Ala Ser Cys Leu Val Pro Thr Val Ala Gln Tyr Arg Phe
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Tyr Leu Ser Phe Glu Asn Ser Gln His Arg Asp Tyr Ile Thr Glu Lys
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Phe Trp Arg Asn Ala Leu Val Ala Gly Thr Val Pro Val Val Leu Gly
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Pro Pro Arg Ala Thr Tyr Glu Ala Phe Val Pro Ala Asp Ala Phe Val
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His Val Asp Asp Phe Gly Ser Ala Arg Glu Leu Ala Ala Phe Leu Thr
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Leu Arg Val Arg Leu Phe Thr Asp Trp Arg Glu Arg Phe Cys Ala Ile
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Cys Asp Arg Tyr Pro His Leu Pro Arg Ser Gln Val Tyr Glu Asp Leu
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Glu Gly Trp Phe Gln Ala
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