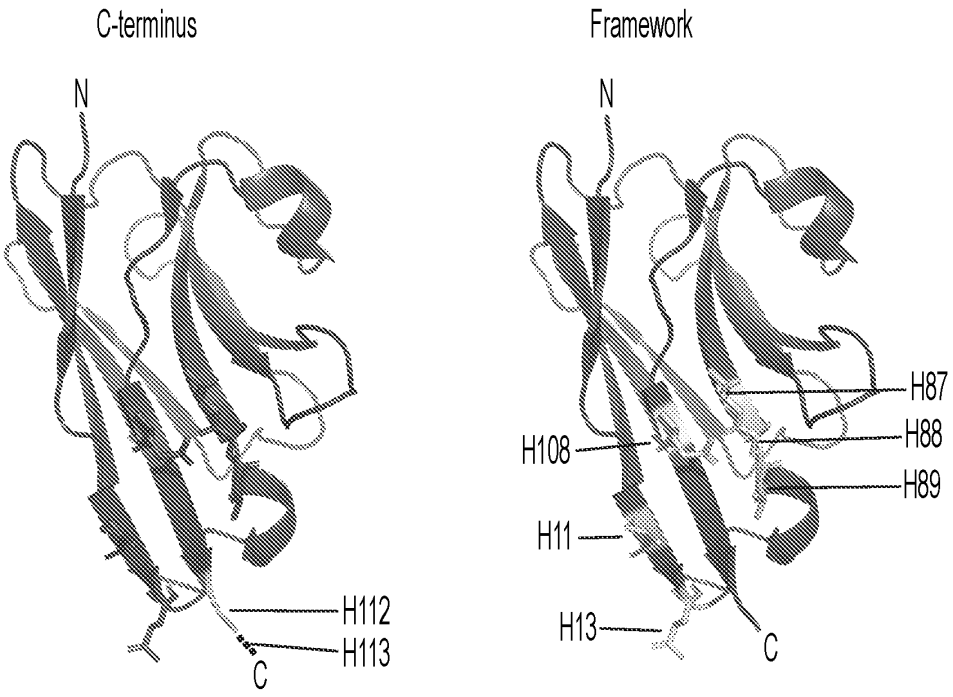


FIG. 1

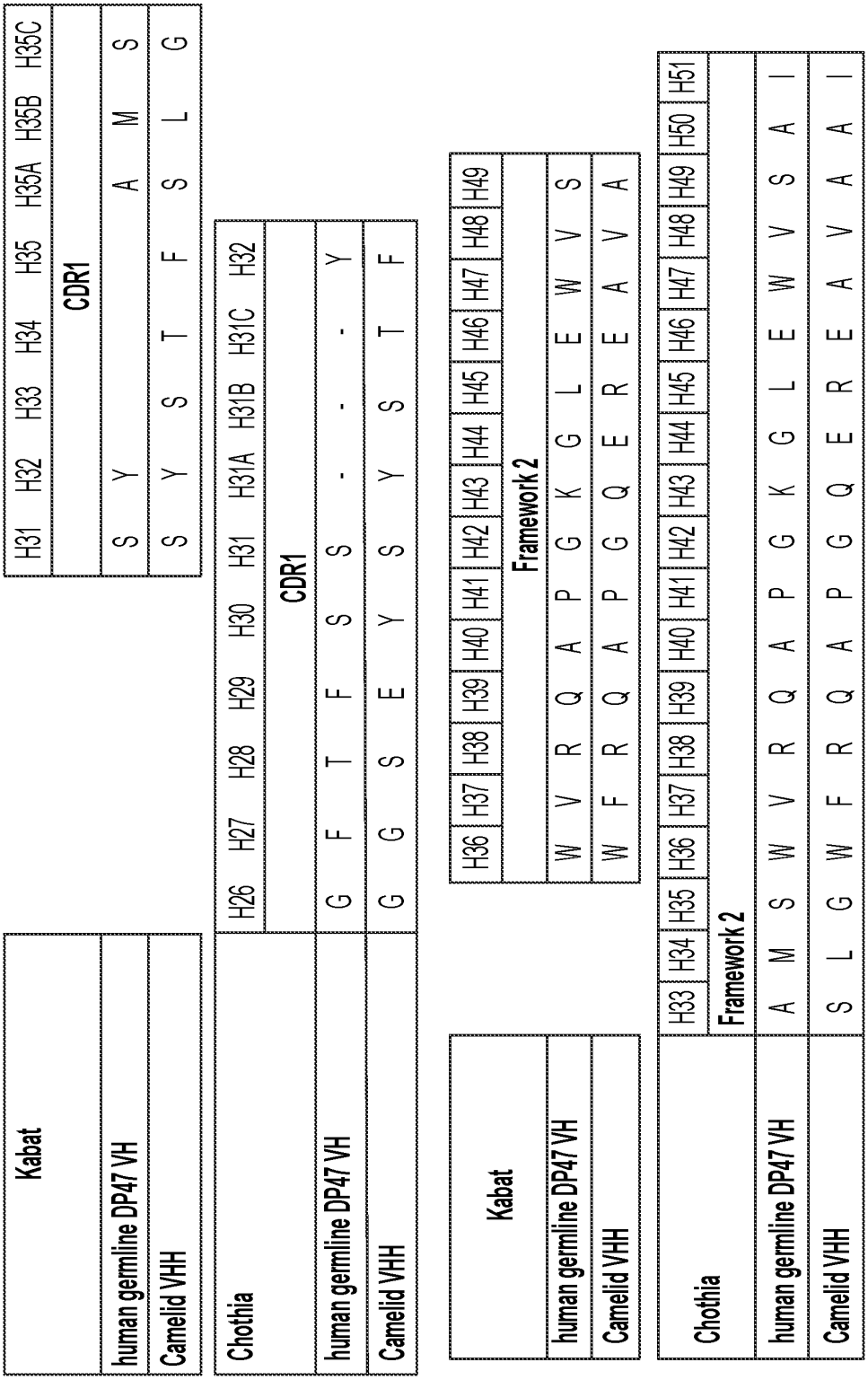
Kabat	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16
	Framework 1															
human germline DP47 VH	E	V	Q	L	L	E	S	G	G	G	L	V	Q	P	G	G
Camelid VHH	Q	V	Q	L	V	E	S	G	G	G	S	V	Q	A	G	G

Chothia	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12	H13	H14	H15	H16
	Framework 1															
human germline DP47 VH	E	V	Q	L	L	E	S	G	G	G	L	V	Q	P	G	G
Camelid VHH	Q	V	Q	L	V	E	S	G	G	G	S	V	Q	A	G	G

Kabat	H17	H18	H19	H20	H21	H22	H23	H24	H25	H26	H27	H28	H29	H30
	Framework 1													
human germline DP47 VH	S	L	R	L	S	C	A	A	S	G	F	T	F	S
Camelid VHH	S	L	R	L	S	C	T	A	S	G	G	S	E	Y

Chothia	H17	H18	H19	H20	H21	H22	H23	H24	H25
	Framework 1								
human germline DP47 VH	S	L	R	L	S	C	A	A	S
Camelid VHH	S	L	R	L	S	C	T	A	S

FIG. 2A



Kabat	H31	H32	H33	H34	H35	H35A	H35B	H35C
	CDR1							
human germline DP47 VH	S	Y				A	M	S
Camelid VHH	S	Y	S	T	F	S	L	G

Chothia	H26	H27	H28	H29	H30	H31	H31A	H31B	H31C	H32
	CDR1									
human germline DP47 VH	G	F	T	F	S	S	-	-	-	Y
Camelid VHH	G	G	S	E	Y	S	Y	S	T	F

Kabat	H36	H37	H38	H39	H40	H41	H42	H43	H44	H45	H46	H47	H48	H49
	Framework 2													
human germline DP47 VH	W	V	R	Q	A	P	G	K	G	L	E	W	V	S
Camelid VHH	W	F	R	Q	A	P	G	Q	E	R	E	A	V	A

Chothia	H33	H34	H35	H36	H37	H38	H39	H40	H41	H42	H43	H44	H45	H46	H47	H48	H49	H50	H51
	Framework 2																		
human germline DP47 VH	A	M	S	W	V	R	Q	A	P	G	K	G	L	E	W	V	S	A	I
Camelid VHH	S	L	G	W	F	R	Q	A	P	G	Q	E	R	E	A	V	A	A	I

FIG. 2B

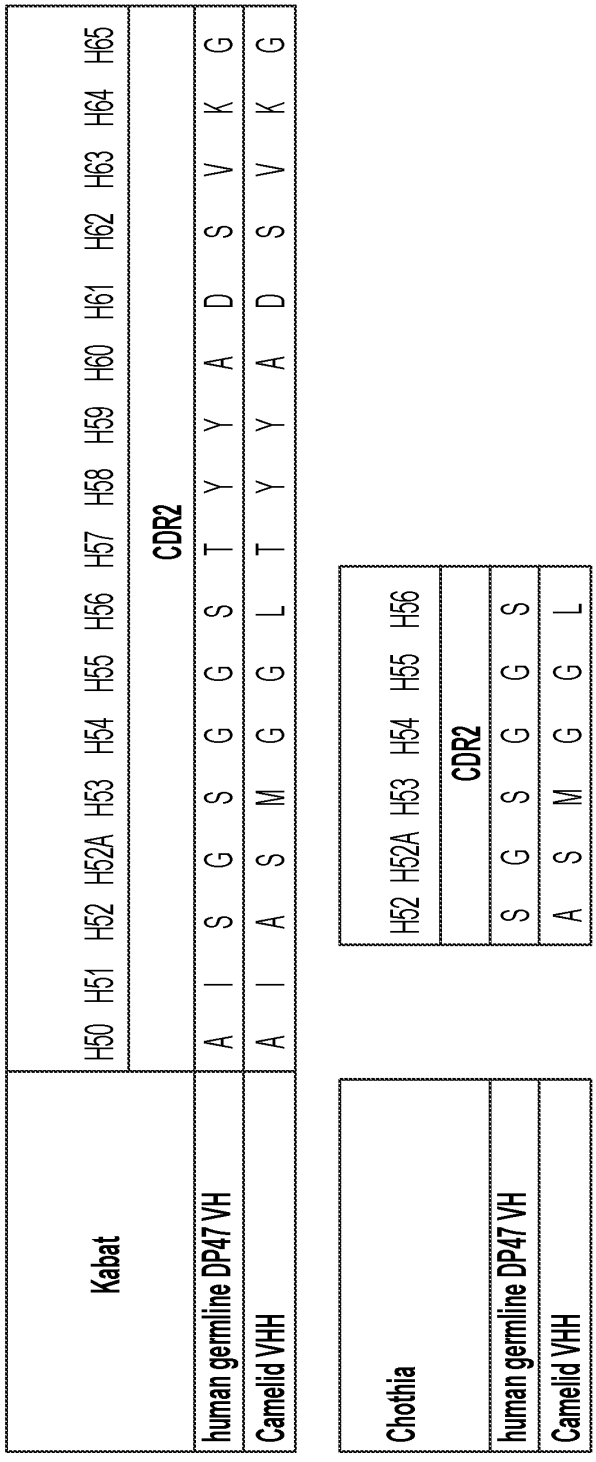

Kabat
H50 H51 H52 H52A H53 H54 H55 H56 H57 H58 H59 H60 H61 H62 H63 H64 H65
CDR2
human germline DP47 VH
A I S G S G G S T Y Y A D S V K G
Camelid VHH
A I A S M G G L T Y Y A D S V K G
Chothia
H52 H52A H53 H54 H55 H56
CDR2
human germline DP47 VH
S G S G G S
Camelid VHH
A S M G G L

FIG. 2C

Chothia	H57	H58	H59	H60	H61	H62	H63	H64	H65
	Framework 3								
human germline DP47 VH	T	Y	Y	A	D	S	V	K	G
Camelid VHH	T	Y	Y	A	D	S	V	K	G

Kabat	H66	H67	H68	H69	H70	H71	H72	H73	H74	H75	H76	H77	H78	H79	H80	H81	H82	H82A
	Framework 3																	
human germline DP47 VH	R	F	T	I	S	R	D	N	S	K	N	T	L	Y	L	Q	M	N
Camelid VHH	R	F	T	I	S	R	D	N	A	K	N	T	V	T	L	Q	M	N

Chothia	H66	H67	H68	H69	H70	H71	H72	H73	H74	H75	H76	H77	H78	H79	H80	H81	H82	H82A
	Framework 3																	
human germline DP47 VH	R	F	T	I	S	R	D	N	S	K	N	T	L	Y	L	Q	M	N
Camelid VHH	R	F	T	I	S	R	D	N	A	K	N	T	V	T	L	Q	M	N

Kabat	H82B	H82C	H83	H84	H85	H86	H87	H88	H89	H90	H91	H92	H93	H94
	Framework 3													
human germline DP47 VH	S	L	R	A	E	D	T	A	V	Y	Y	C	A	K
Camelid VHH	N	L	K	P	E	D	T	A	I	Y	Y	C	A	A

Chothia	H82B	H82C	H83	H84	H85	H86	H87	H88	H89	H90	H91	H92	H93	H94
	Framework 3													
human germline DP47 VH	S	L	R	A	E	D	T	A	V	Y	Y	C	A	K
Camelid VHH	N	L	K	P	E	D	T	A	I	Y	Y	C	A	A

FIG. 2D

Kabat	H95	H96	H97	H98	H99	H100	H100A	H100B	H100C	H100D	H100E	H100F	H100G	H100H	H101	H102
	CDR3															
human germline DP47 VH	S	Y	G	A	F	-	-	-	-	-	-	-	-	-	D	Y
Camelid VHH	V	R	G	Y	F	M	R	L	P	S	S	H	N	F	R	Y

Chothia	H95	H96	H97	H98	H99	H100	H100A	H100B	H100C	H100D	H100E	H100F	H100G	H100H	H101	H102
	CDR3															
human germline DP47 VH	S	Y	G	A	F	-	-	-	-	-	-	-	-	-	D	Y
Camelid VHH	V	R	G	Y	F	M	R	L	P	S	S	H	N	F	R	Y

Kabat	H103	H104	H105	H106	H107	H108	H109	H110	H111	H112	H113
	Framework4										
human germline DP47 VH	W	G	Q	G	T	L	V	T	V	S	S
Camelid VHH	W	G	Q	G	T	Q	V	T	V	S	S

Chothia	H103	H104	H105	H106	H107	H108	H109	H110	H111	H112	H113
	Framework4										
human germline DP47 VH	W	G	Q	G	T	L	V	T	V	S	S
Camelid VHH	W	G	Q	G	T	Q	V	T	V	S	S

FIG. 2E

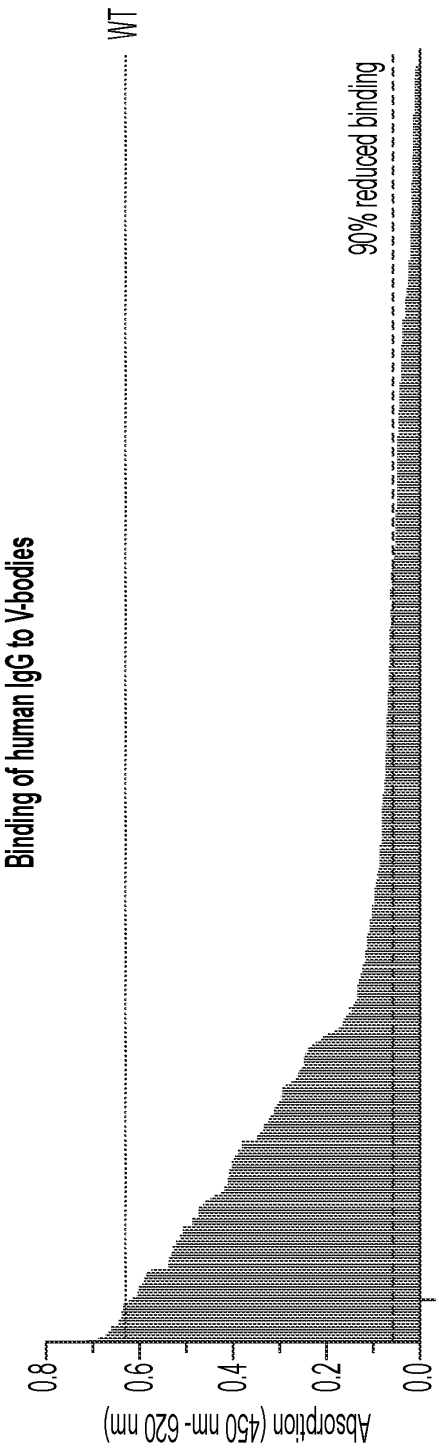

Binding of human IgG to V-bodies
Absorption (450 nm- 620 nm)
0.8
0.6
0.4
0.2
0.0
WT
WT
90% reduced binding
V-Body ID

FIG. 3

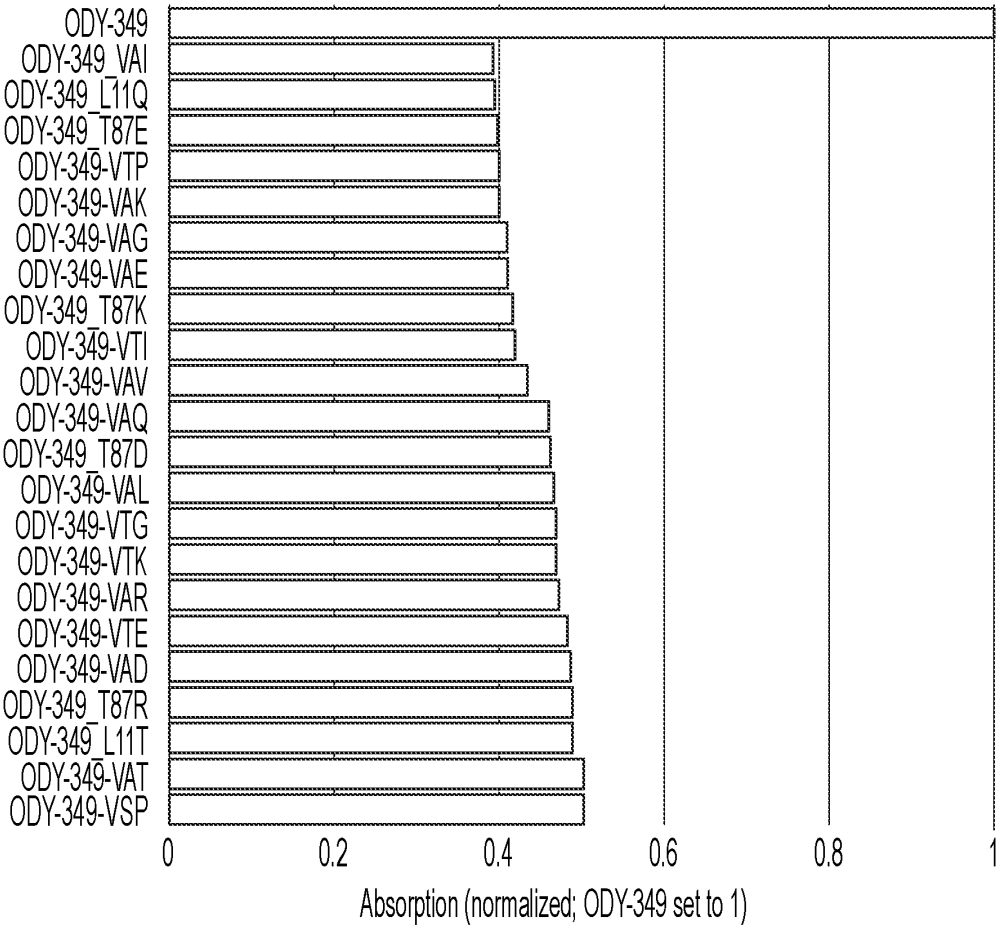

ODY-349
ODY-349_VAI
ODY-349_L11Q
ODY-349_T87E
ODY-349-VTP
ODY-349-VAK
ODY-349-VAG
ODY-349-VAE
ODY-349_T87K
ODY-349-VTI
ODY-349-VAV
ODY-349-VAQ
ODY-349_T87D
ODY-349-VAL
ODY-349-VTG
ODY-349-VTK
ODY-349-VAR
ODY-349-VTE
ODY-349-VAD
ODY-349_T87R
ODY-349_L11T
ODY-349-VAT
ODY-349-VSP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4A

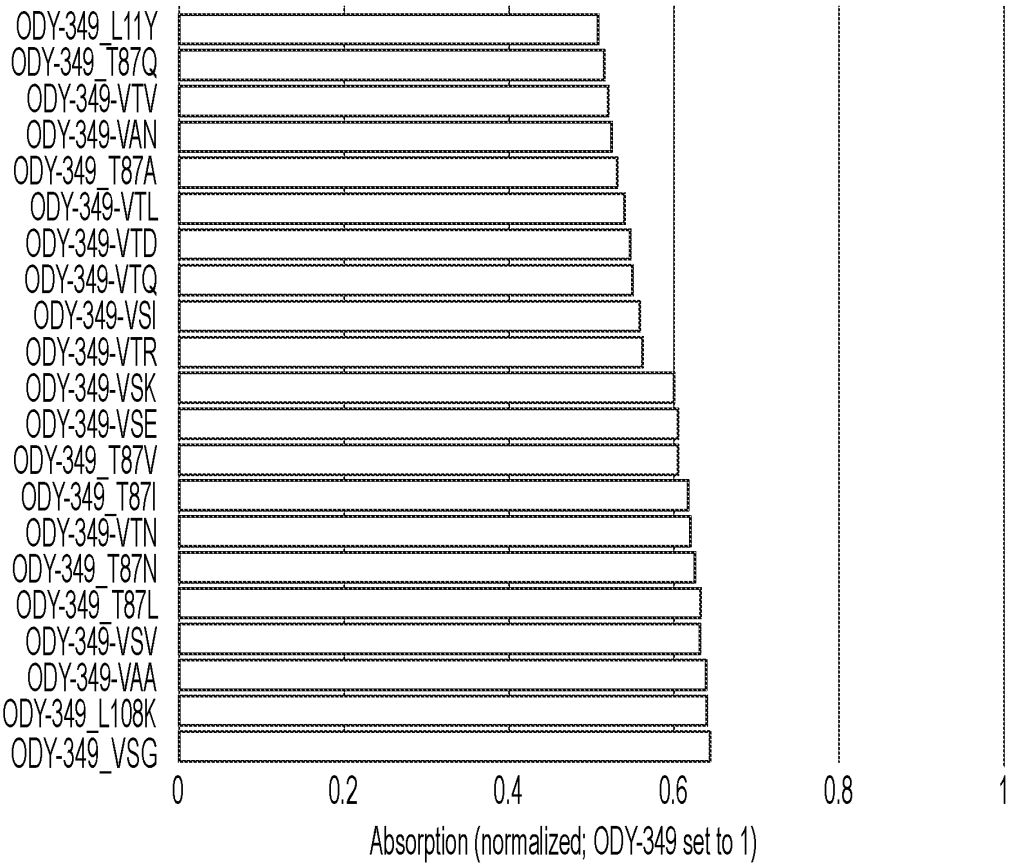

ODY-349_L11Y
ODY-349_T87Q
ODY-349-VTV
ODY-349-VAN
ODY-349_T87A
ODY-349-VTL
ODY-349-VTD
ODY-349-VTQ
ODY-349-VSI
ODY-349-VTR
ODY-349-VSK
ODY-349-VSE
ODY-349_T87V
ODY-349_T87I
ODY-349-VTN
ODY-349_T87N
ODY-349_T87L
ODY-349-VSV
ODY-349-VAA
ODY-349_L108K
ODY-349_VSG
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4B

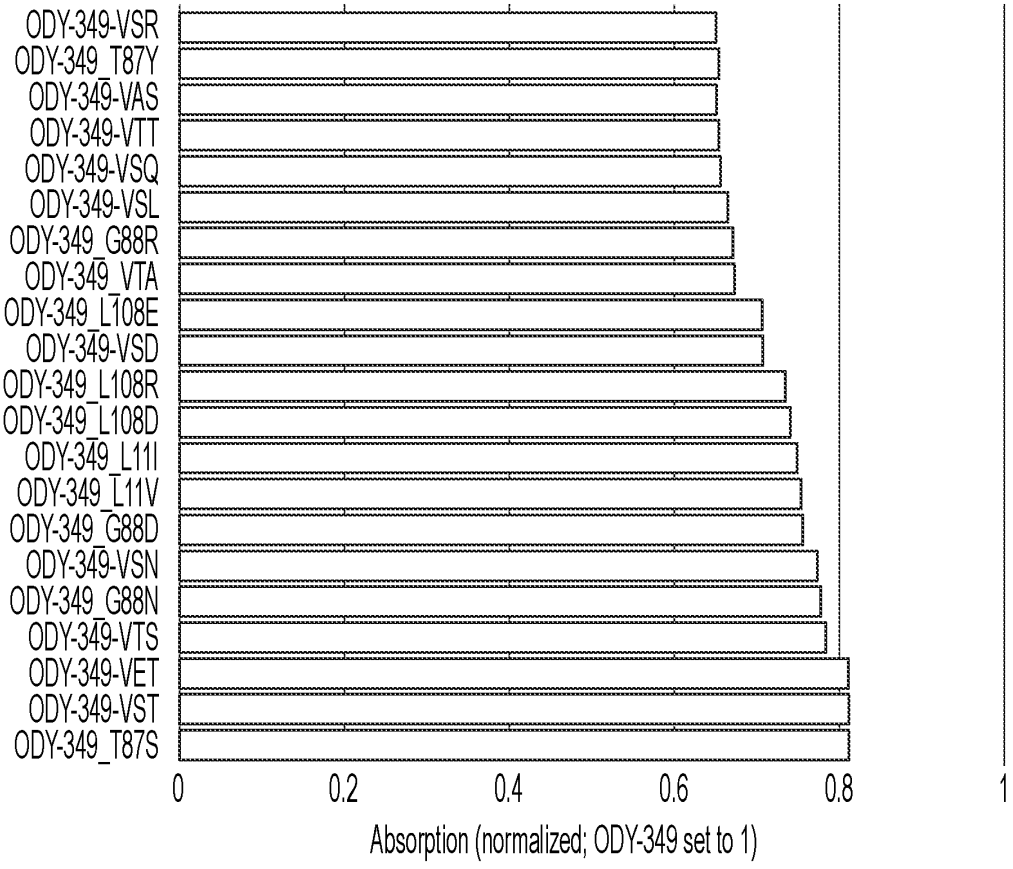
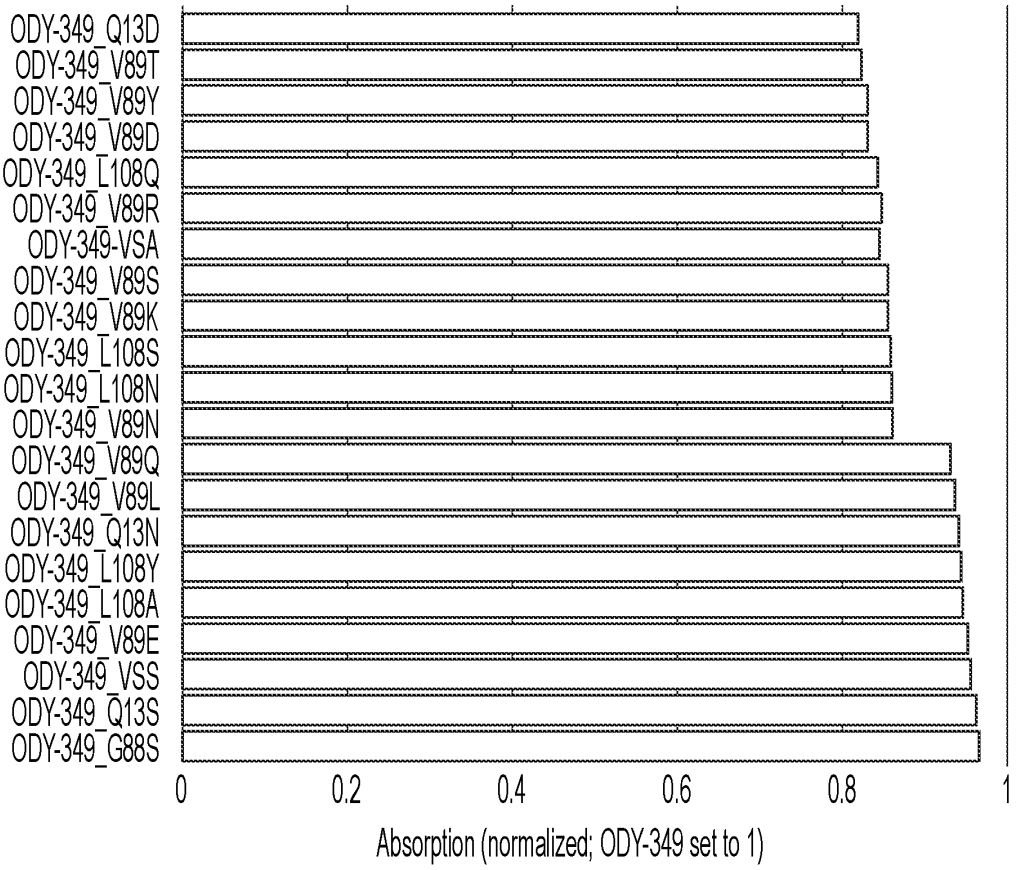

ODY-349-VSR
ODY-349_T87Y
ODY-349-VAS
ODY-349-VTT
ODY-349-VSQ
ODY-349-VSL
ODY-349_G88R
ODY-349_VTA
ODY-349_L108E
ODY-349-VSD
ODY-349_L108R
ODY-349_L108D
ODY-349_L11I
ODY-349_L11V
ODY-349_G88D
ODY-349-VSN
ODY-349_G88N
ODY-349-VTS
ODY-349-VET
ODY-349-VST
ODY-349_T87S
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4C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ODY-349_V89T
ODY-349_V89Y
ODY-349_V89D
ODY-349_L108Q
ODY-349_V89R
ODY-349-VSA
ODY-349_V89S
ODY-349_V89K
ODY-349_L108S
ODY-349_L108N
ODY-349_V89N
ODY-349_V89Q
ODY-349_V89L
ODY-349_Q13N
ODY-349_L108Y
ODY-349_L108A
ODY-349_V89E
ODY-349_VSS
ODY-349_Q13S
ODY-349_G88S
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4D

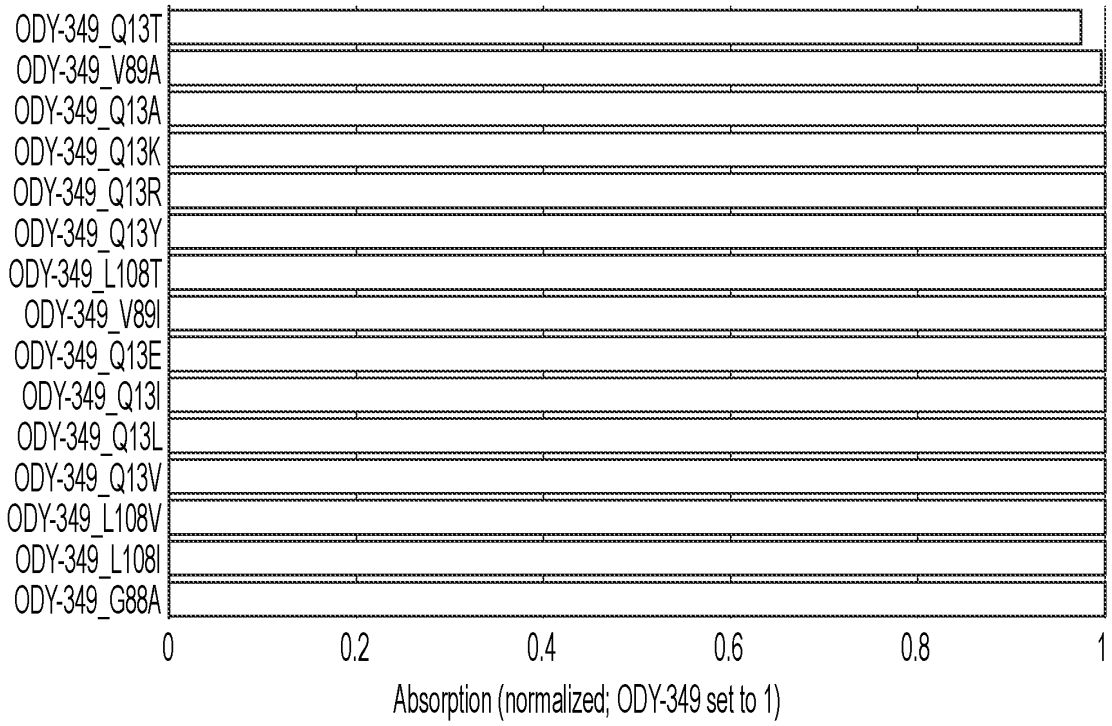
ODY-349_Q13T
ODY-349_V89A
ODY-349_Q13A
ODY-349_Q13K
ODY-349_Q13R
ODY-349_Q13Y
ODY-349_L108T
ODY-349_V89I
ODY-349_Q13E
ODY-349_Q13I
ODY-349_Q13L
ODY-349_Q13V
ODY-349_L108V
ODY-349_L108I
ODY-349_G88A
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4E

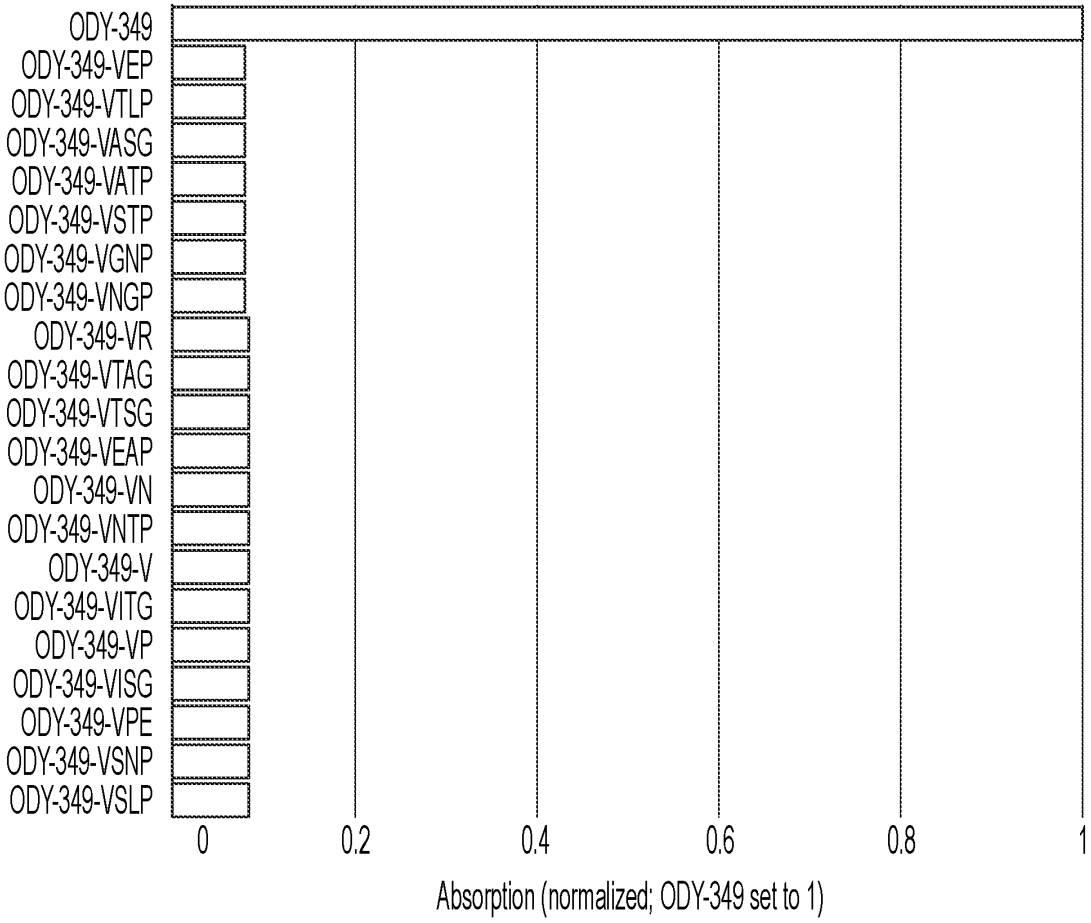
ODY-349
ODY-349-VEP
ODY-349-VTLP
ODY-349-VASG
ODY-349-VATP
ODY-349-VSTP
ODY-349-VGNP
ODY-349-VNGP
ODY-349-VR
ODY-349-VTAG
ODY-349-VTSG
ODY-349-VEAP
ODY-349-VN
ODY-349-VNTP
ODY-349-V
ODY-349-VITG
ODY-349-VP
ODY-349-VISG
ODY-349-VPE
ODY-349-VSNP
ODY-349-VSLP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4F

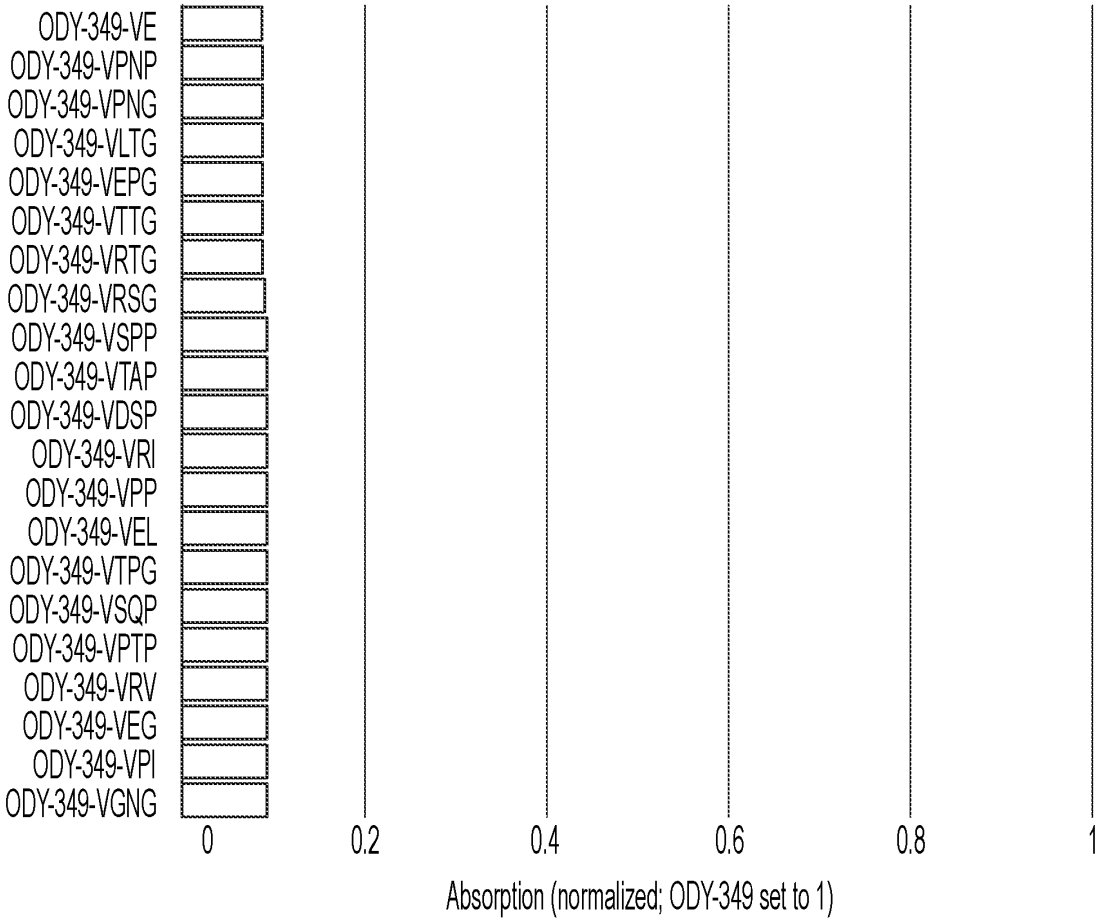
ODY-349-VE
ODY-349-VPNP
ODY-349-VPNG
ODY-349-VLTG
ODY-349-VEPG
ODY-349-VTTG
ODY-349-VRTG
ODY-349-VRSG
ODY-349-VSPP
ODY-349-VTAP
ODY-349-VDSP
ODY-349-VRI
ODY-349-VPP
ODY-349-VEL
ODY-349-VTPG
ODY-349-VSQP
ODY-349-VPTP
ODY-349-VRV
ODY-349-VEG
ODY-349-VPI
ODY-349-VGNG
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4G

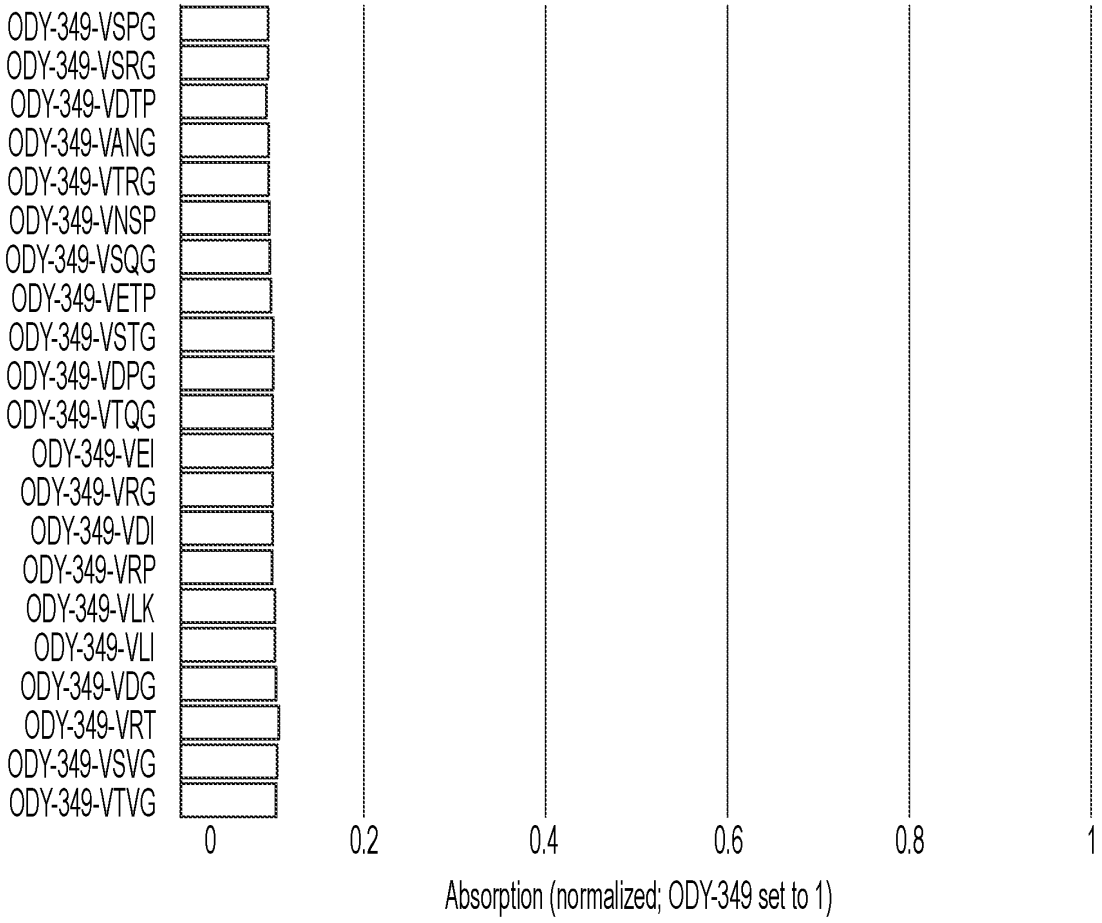
ODY-349-VSPG
ODY-349-VSRG
ODY-349-VDTP
ODY-349-VANG
ODY-349-VTRG
ODY-349-VNSP
ODY-349-VSQG
ODY-349-VETP
ODY-349-VSTG
ODY-349-VDPG
ODY-349-VTQG
ODY-349-VEI
ODY-349-VRG
ODY-349-VDI
ODY-349-VRP
ODY-349-VLK
ODY-349-VLI
ODY-349-VDG
ODY-349-VRT
ODY-349-VSVG
ODY-349-VTVG
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4H

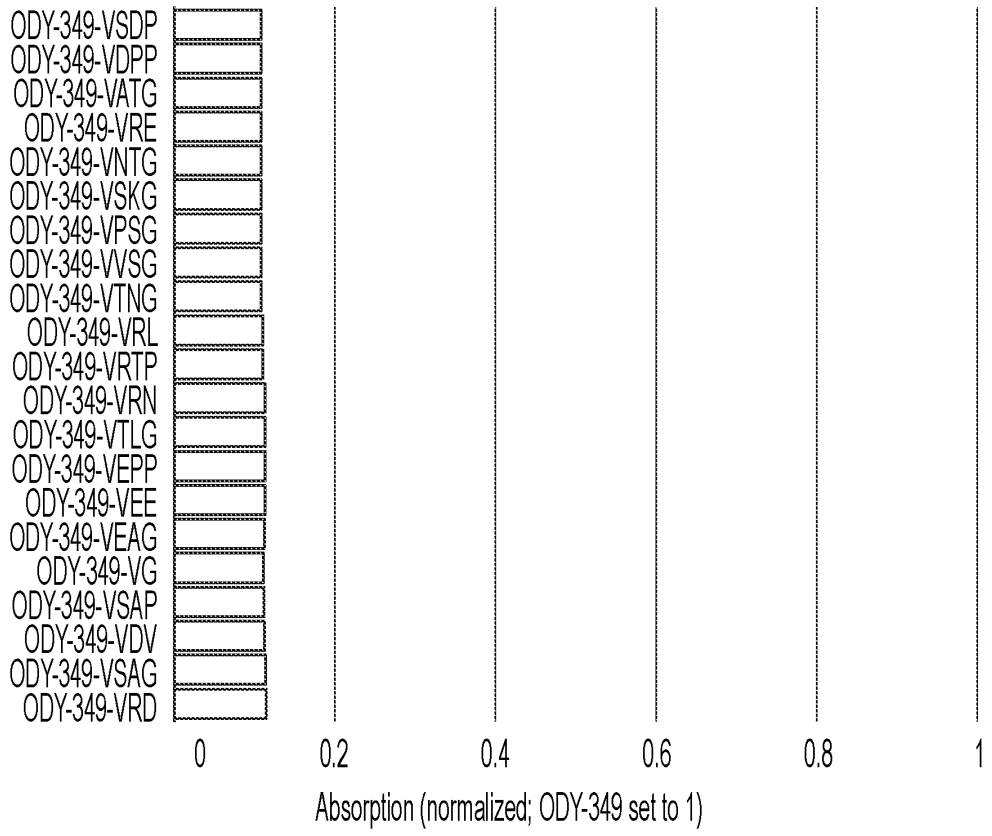
ODY-349-VSDP
ODY-349-VDPP
ODY-349-VATG
ODY-349-VRE
ODY-349-VNTG
ODY-349-VSKG
ODY-349-VPSG
ODY-349-VVSG
ODY-349-VTNG
ODY-349-VRL
ODY-349-VRTP
ODY-349-VRN
ODY-349-VTLG
ODY-349-VEPP
ODY-349-VEE
ODY-349-VEAG
ODY-349-VG
ODY-349-VSAP
ODY-349-VDV
ODY-349-VSAG
ODY-349-VRD
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4I

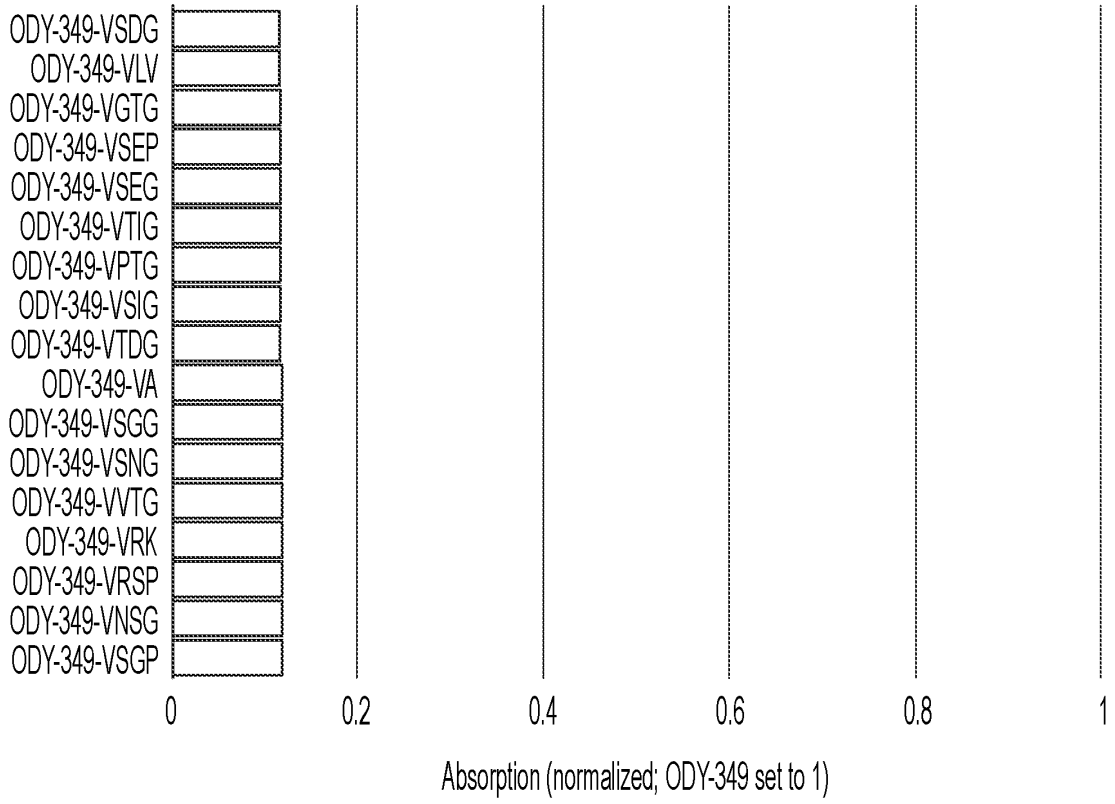
ODY-349-VSDG
ODY-349-VLV
ODY-349-VGTG
ODY-349-VSEP
ODY-349-VSEG
ODY-349-VTIG
ODY-349-VPTG
ODY-349-VSIG
ODY-349-VTDG
ODY-349-VA
ODY-349-VSGG
ODY-349-VSNG
ODY-349-VVTG
ODY-349-VRK
ODY-349-VRSP
ODY-349-VNSG
ODY-349-VSGP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4J

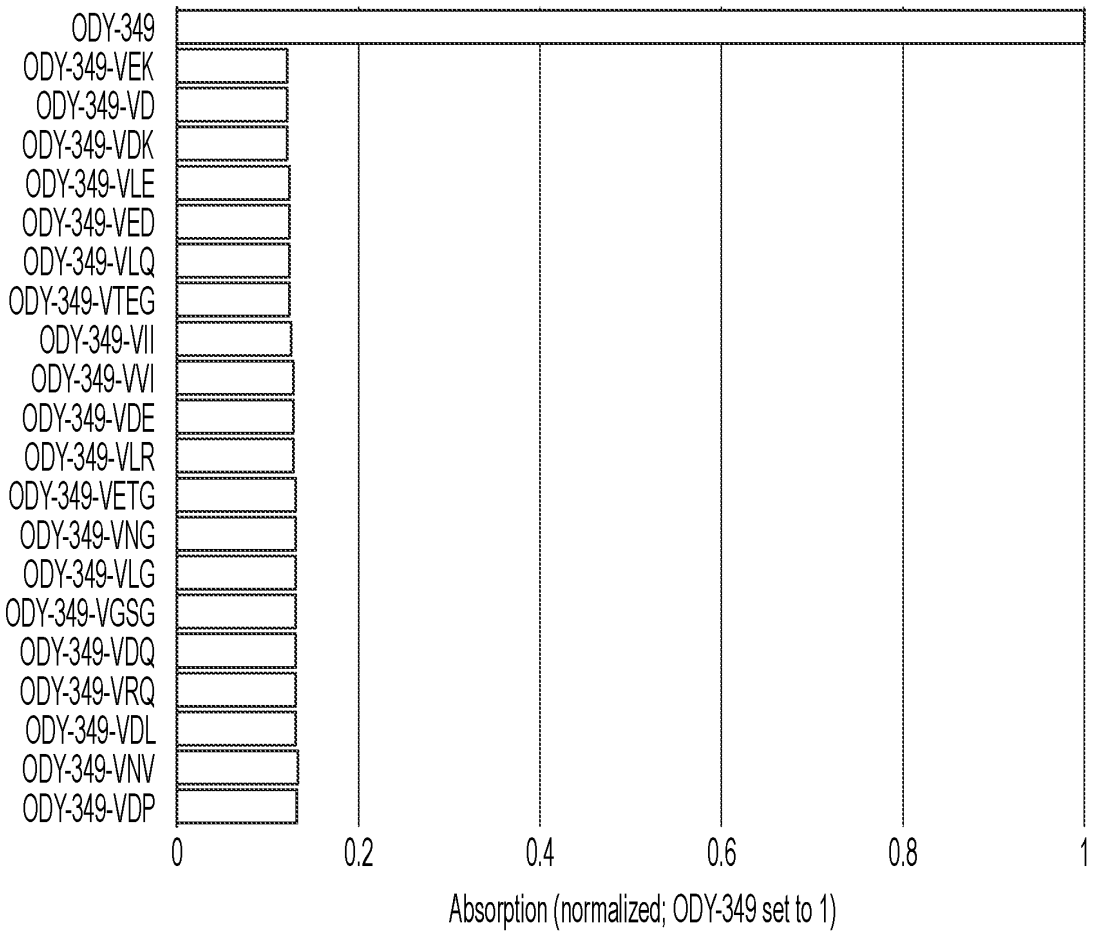
ODY-349
ODY-349-VEK
ODY-349-VD
ODY-349-VDK
ODY-349-VLE
ODY-349-VED
ODY-349-VLQ
ODY-349-VTEG
ODY-349-VII
ODY-349-VVI
ODY-349-VDE
ODY-349-VLR
ODY-349-VETG
ODY-349-VNG
ODY-349-VLG
ODY-349-VGSG
ODY-349-VDQ
ODY-349-VRQ
ODY-349-VDL
ODY-349-VNV
ODY-349-VDP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4K

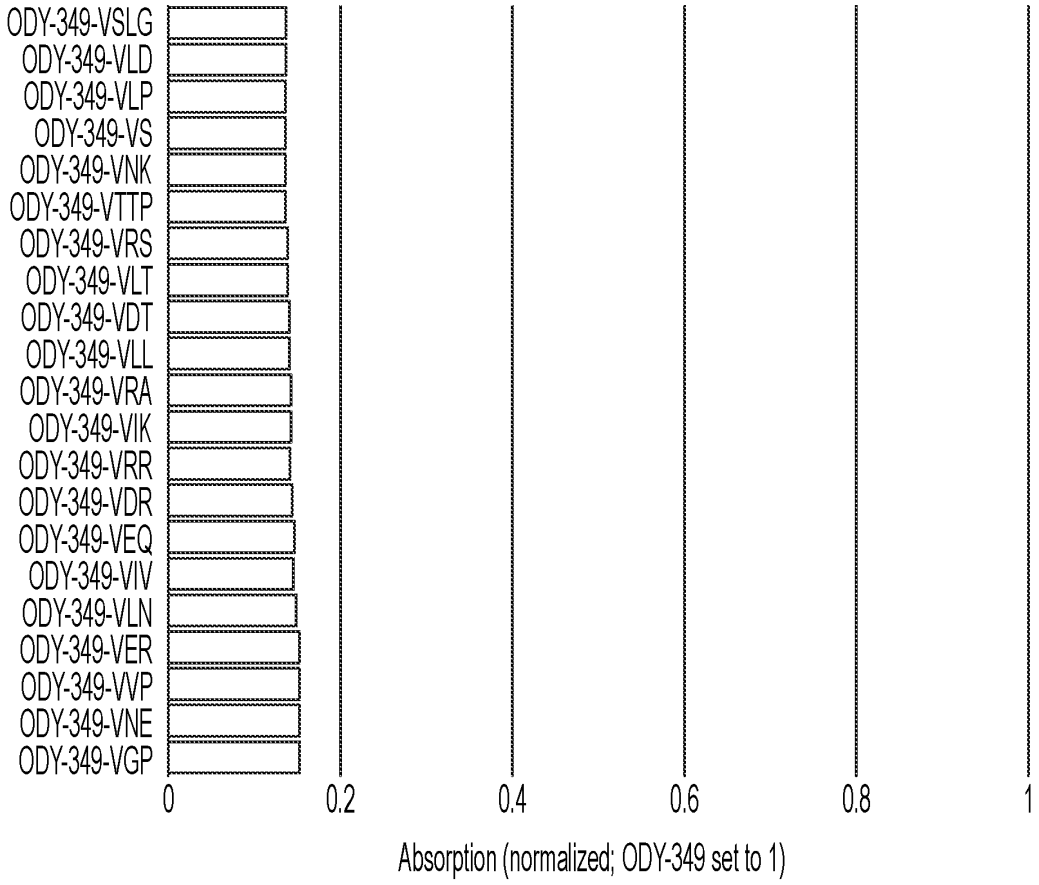
ODY-349-VSLG
ODY-349-VLD
ODY-349-VLP
ODY-349-VS
ODY-349-VNK
ODY-349-VTTP
ODY-349-VRS
ODY-349-VLT
ODY-349-VDT
ODY-349-VLL
ODY-349-VRA
ODY-349-VIK
ODY-349-VRR
ODY-349-VDR
ODY-349-VEQ
ODY-349-VIV
ODY-349-VLN
ODY-349-VER
ODY-349-VVP
ODY-349-VNE
ODY-349-VGP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4L

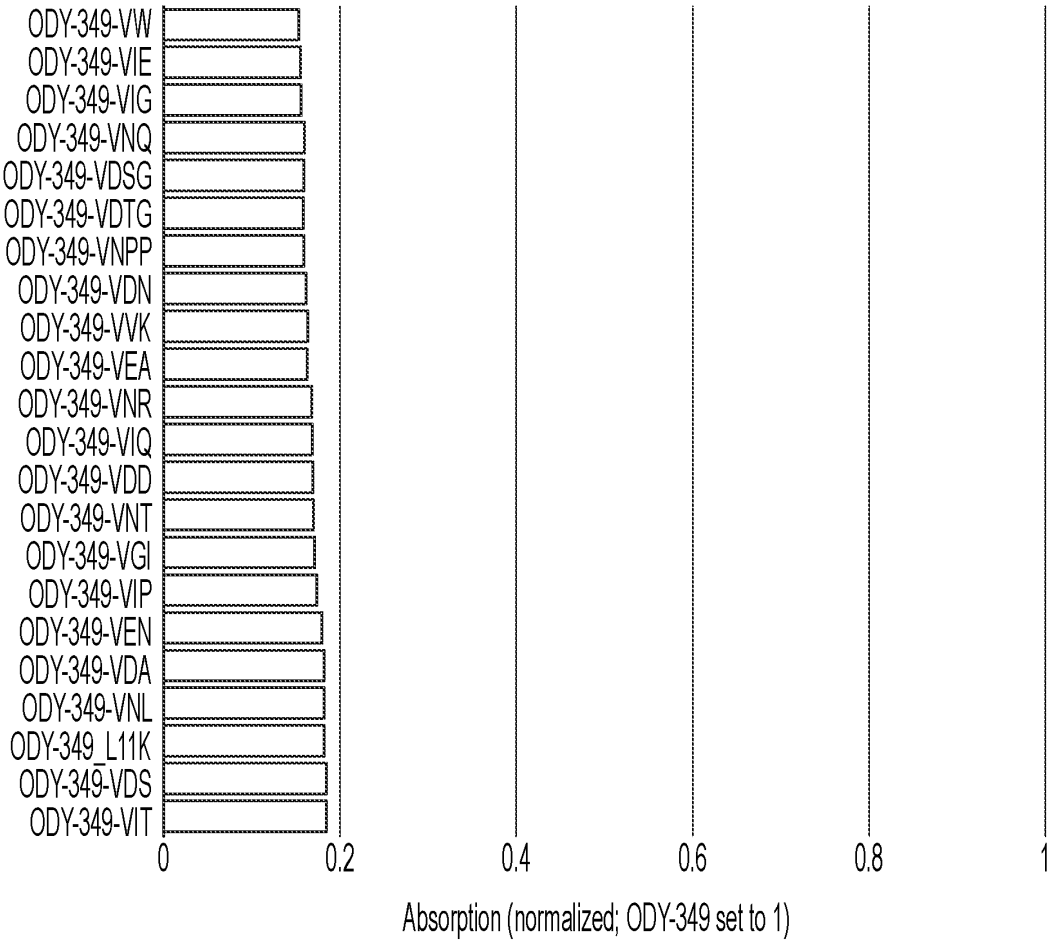
ODY-349-VW
ODY-349-VIE
ODY-349-VIG
ODY-349-VNQ
ODY-349-VDSG
ODY-349-VDTG
ODY-349-VNPP
ODY-349-VDN
ODY-349-VVK
ODY-349-VEA
ODY-349-VNR
ODY-349-VIQ
ODY-349-VDD
ODY-349-VNT
ODY-349-VGI
ODY-349-VIP
ODY-349-VEN
ODY-349-VDA
ODY-349-VNL
ODY-349_L11K
ODY-349-VDS
ODY-349-VIT
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4M

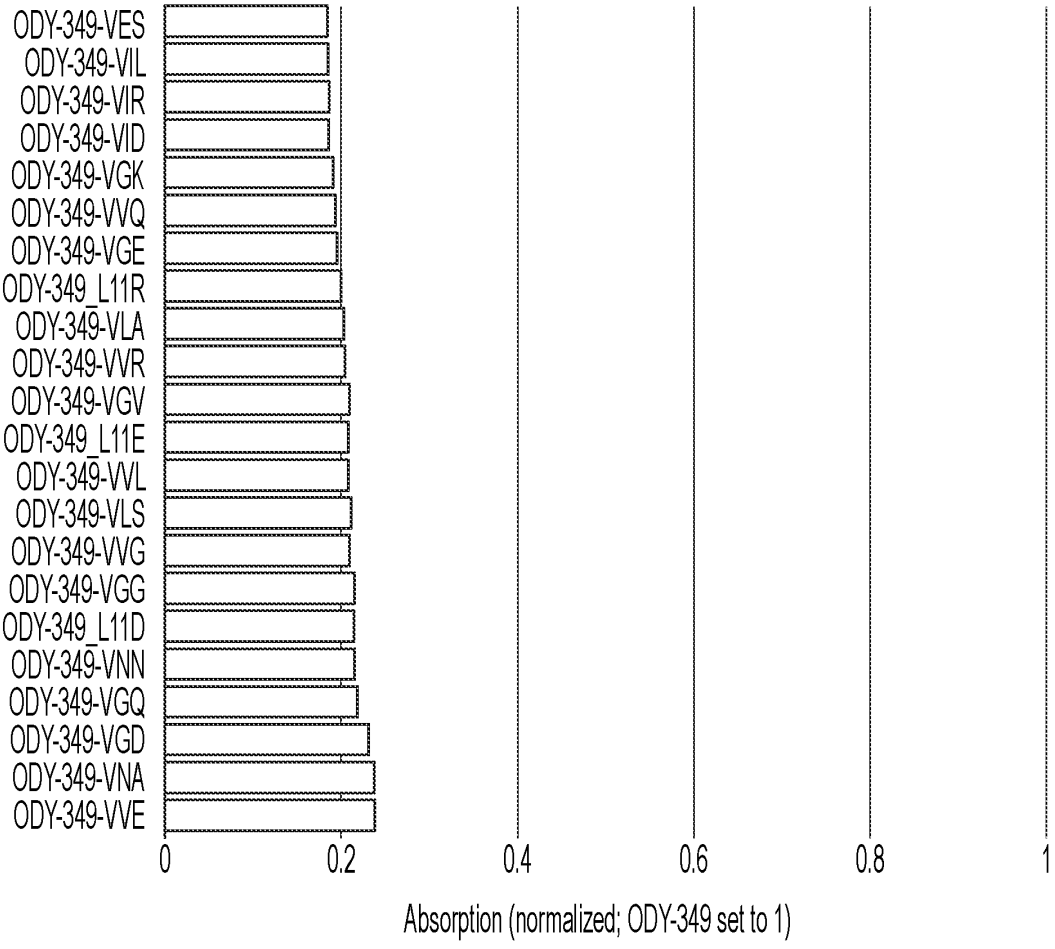
ODY-349-VES
ODY-349-VIL
ODY-349-VIR
ODY-349-VID
ODY-349-VGK
ODY-349-VVQ
ODY-349-VGE
ODY-349_L11R
ODY-349-VLA
ODY-349-VVR
ODY-349-VGV
ODY-349_L11E
ODY-349-VVL
ODY-349-VLS
ODY-349-VVG
ODY-349-VGG
ODY-349_L11D
ODY-349-VNN
ODY-349-VGQ
ODY-349-VGD
ODY-349-VNA
ODY-349-VVE
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4N

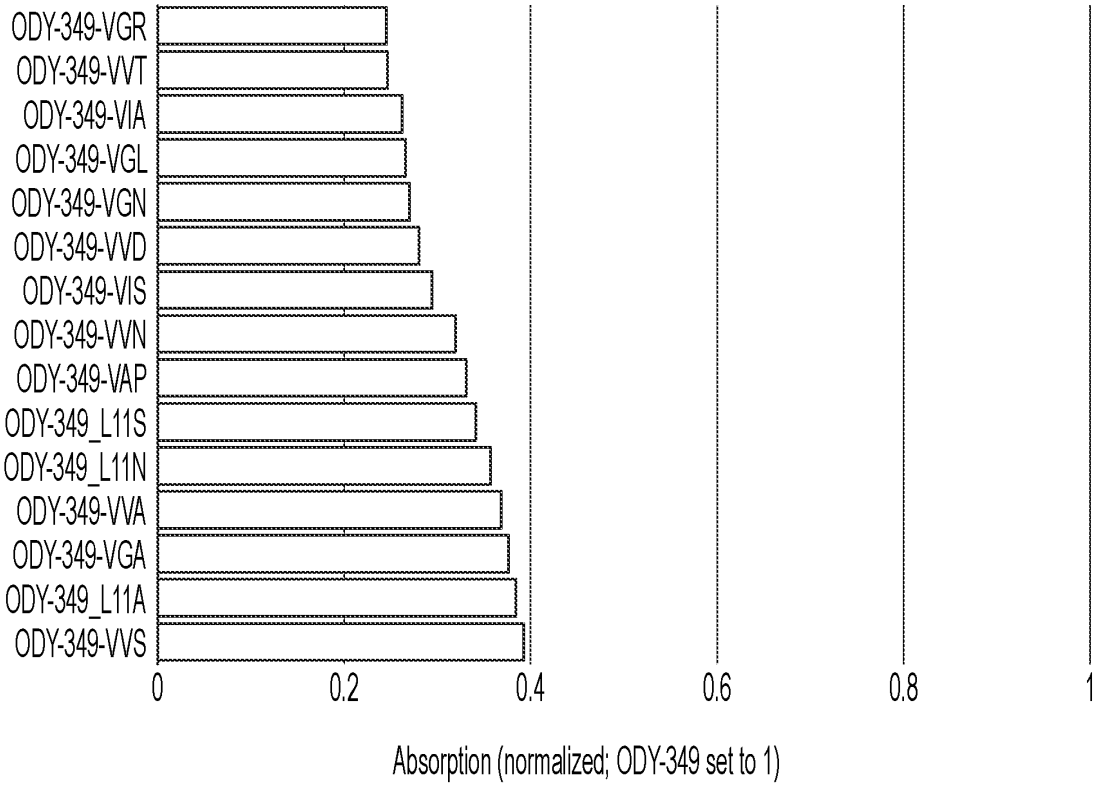
ODY-349-VGR
ODY-349-VVT
ODY-349-VIA
ODY-349-VGL
ODY-349-VGN
ODY-349-VVD
ODY-349-VIS
ODY-349-VVN
ODY-349-VAP
ODY-349_L11S
ODY-349_L11N
ODY-349-VVA
ODY-349-VGA
ODY-349_L11A
ODY-349-VVS
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4O

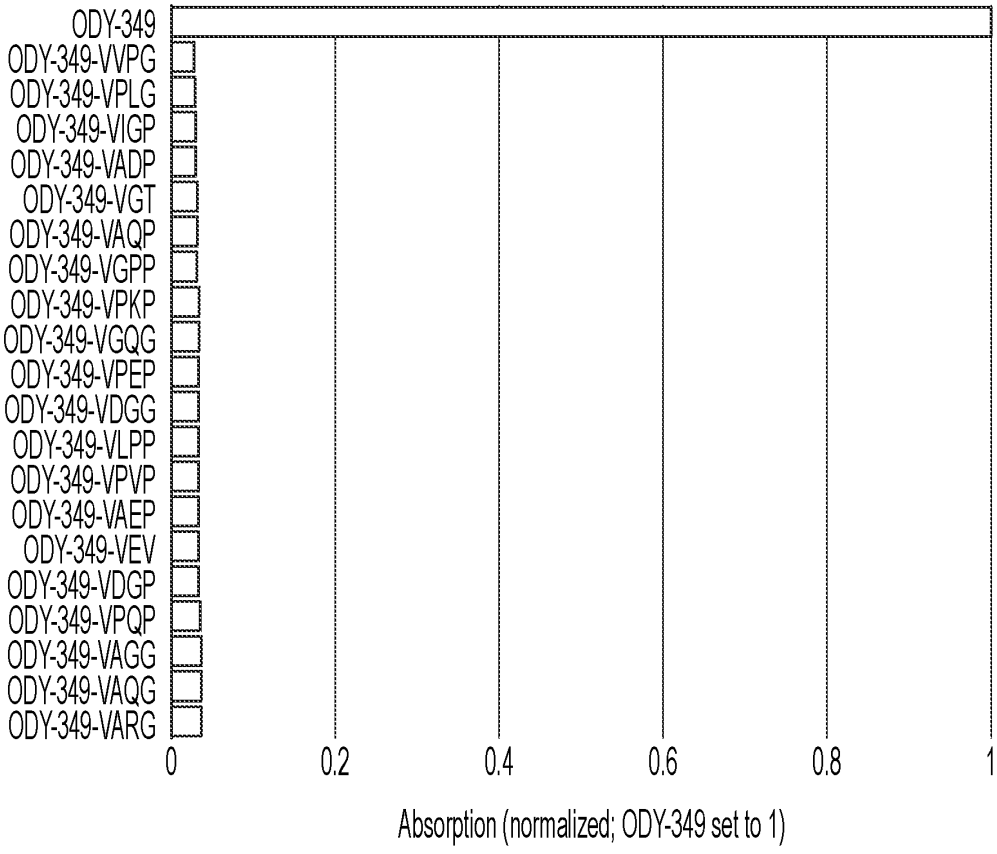
ODY-349
ODY-349-VVPG
ODY-349-VPLG
ODY-349-VIGP
ODY-349-VADP
ODY-349-VGT
ODY-349-VAQP
ODY-349-VGPP
ODY-349-VPKP
ODY-349-VGQG
ODY-349-VPEP
ODY-349-VDGG
ODY-349-VLPP
ODY-349-VPVP
ODY-349-VAEP
ODY-349-VEV
ODY-349-VDGP
ODY-349-VPQP
ODY-349-VAGG
ODY-349-VAQG
ODY-349-VARG
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4P

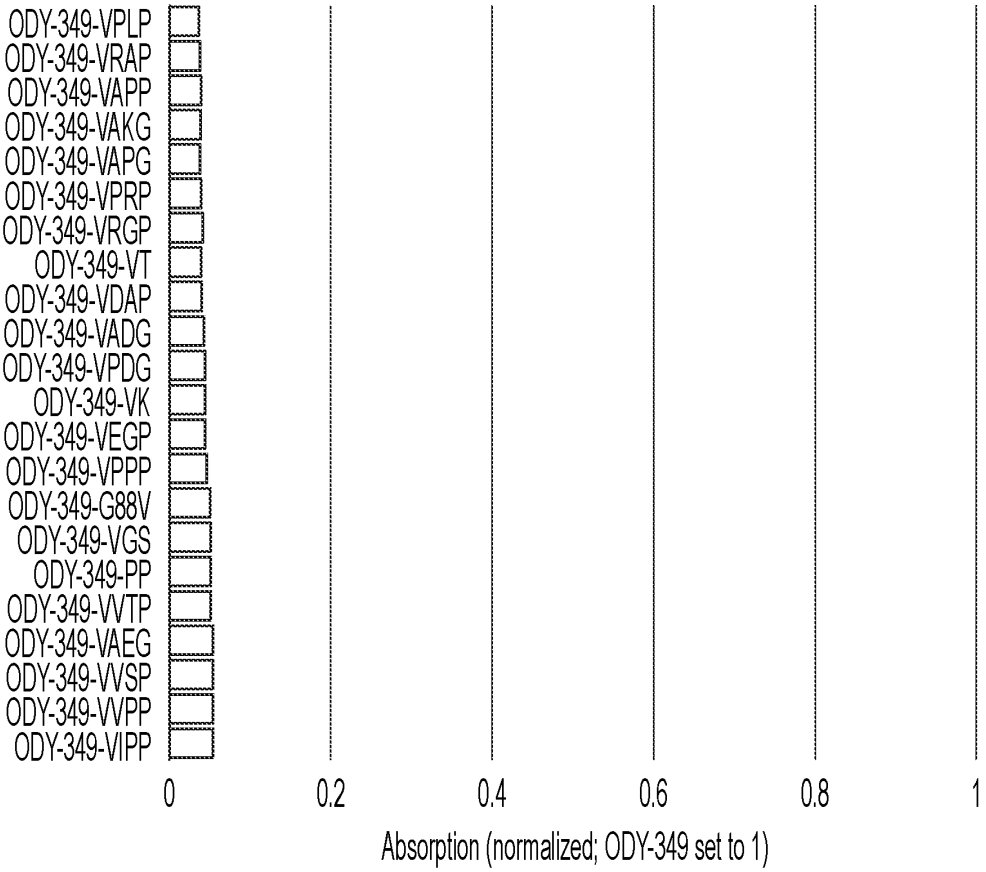
ODY-349-VPLP
ODY-349-VRAP
ODY-349-VAPP
ODY-349-VAKG
ODY-349-VAPG
ODY-349-VPRP
ODY-349-VRGP
ODY-349-VT
ODY-349-VDAP
ODY-349-VADG
ODY-349-VPDG
ODY-349-VK
ODY-349-VEGP
ODY-349-VPPP
ODY-349-G88V
ODY-349-VGS
ODY-349-PP
ODY-349-VVTP
ODY-349-VAEG
ODY-349-VVSP
ODY-349-VVPP
ODY-349-VIPP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4Q

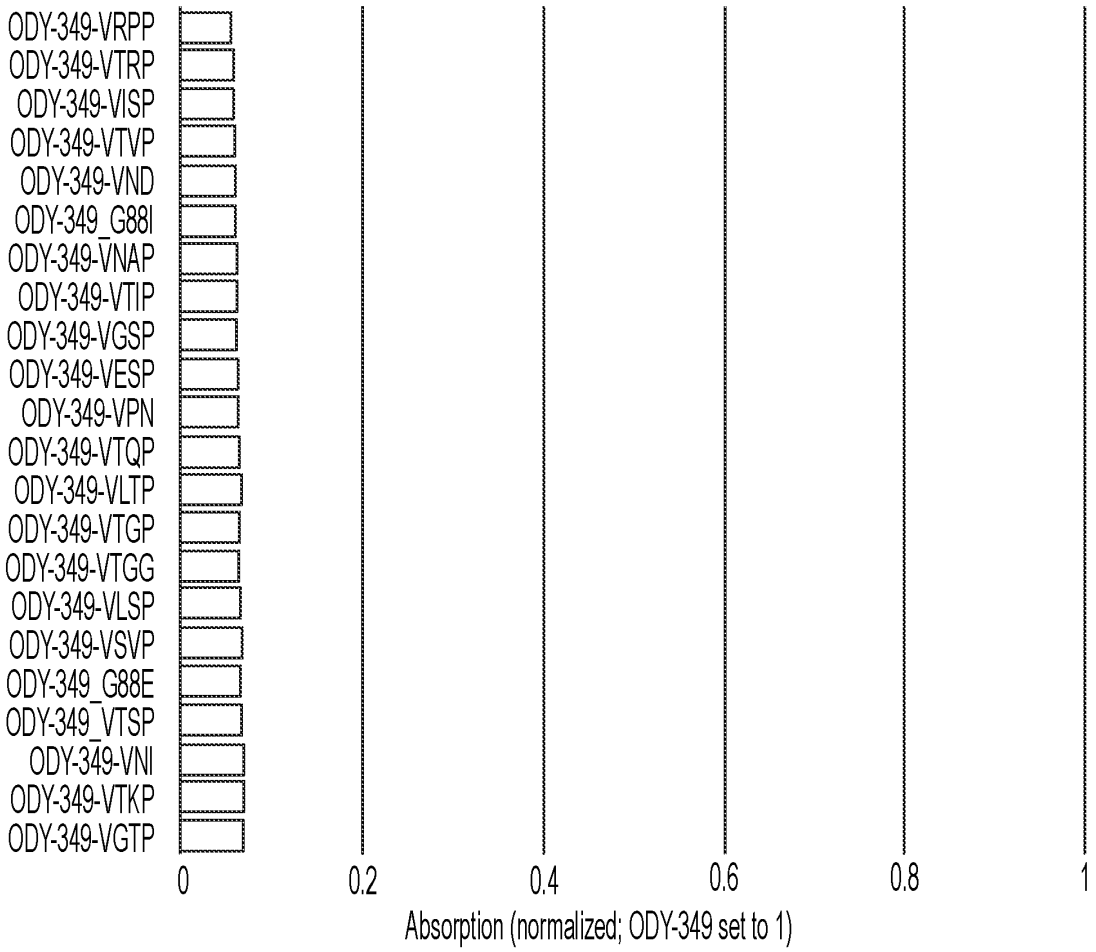
ODY-349-VRPP
ODY-349-VTRP
ODY-349-VISP
ODY-349-VTVP
ODY-349-VND
ODY-349_G88I
ODY-349-VNAP
ODY-349-VTIP
ODY-349-VGSP
ODY-349-VESP
ODY-349-VPN
ODY-349-VTQP
ODY-349-VLTP
ODY-349-VTGP
ODY-349-VTGG
ODY-349-VLSP
ODY-349-VSVP
ODY-349_G88E
ODY-349_VTSP
ODY-349-VNI
ODY-349-VTKP
ODY-349-VGTP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4R

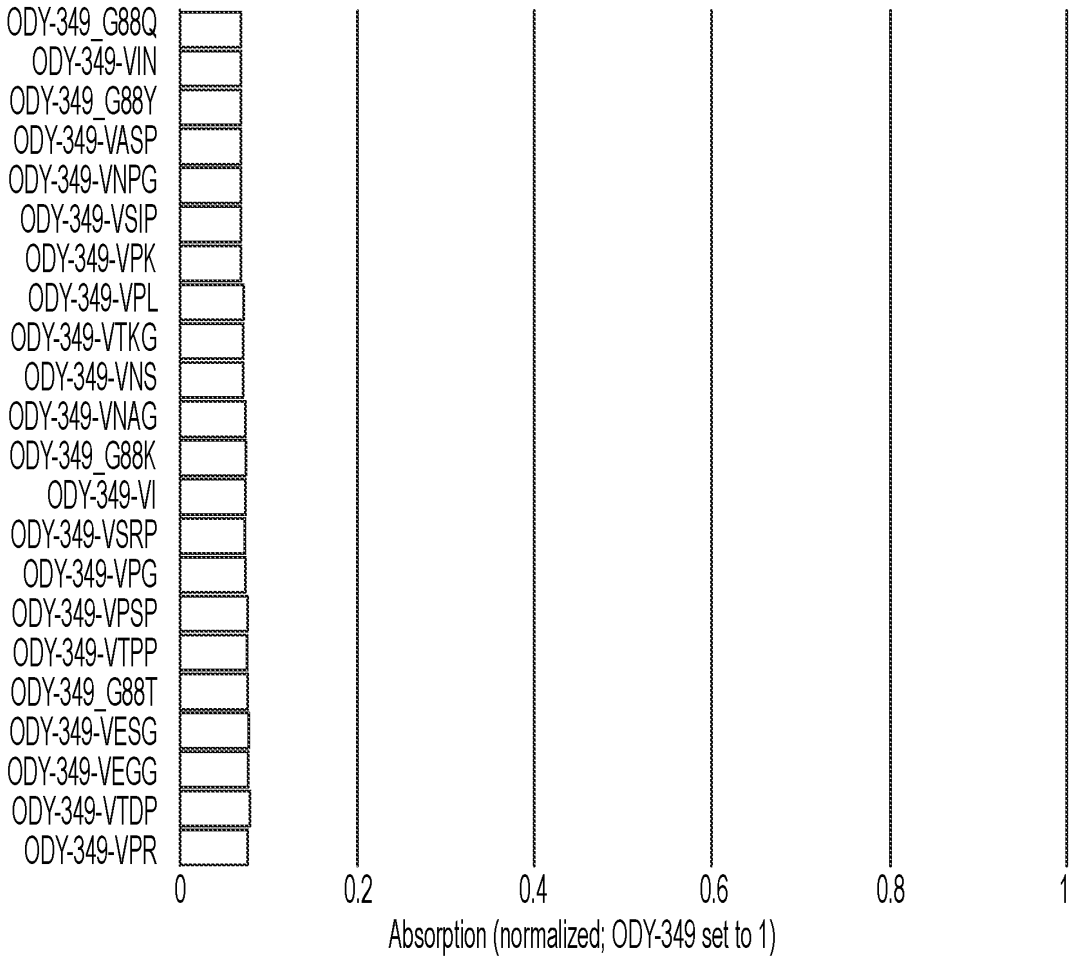
ODY-349_G88Q
ODY-349-VIN
ODY-349_G88Y
ODY-349-VASP
ODY-349-VNPG
ODY-349-VSIP
ODY-349-VPK
ODY-349-VPL
ODY-349-VTKG
ODY-349-VNS
ODY-349-VNAG
ODY-349_G88K
ODY-349-VI
ODY-349-VSRP
ODY-349-VPG
ODY-349-VPSP
ODY-349-VTPP
ODY-349_G88T
ODY-349-VESG
ODY-349-VEGG
ODY-349-VTDP
ODY-349-VPR
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4S

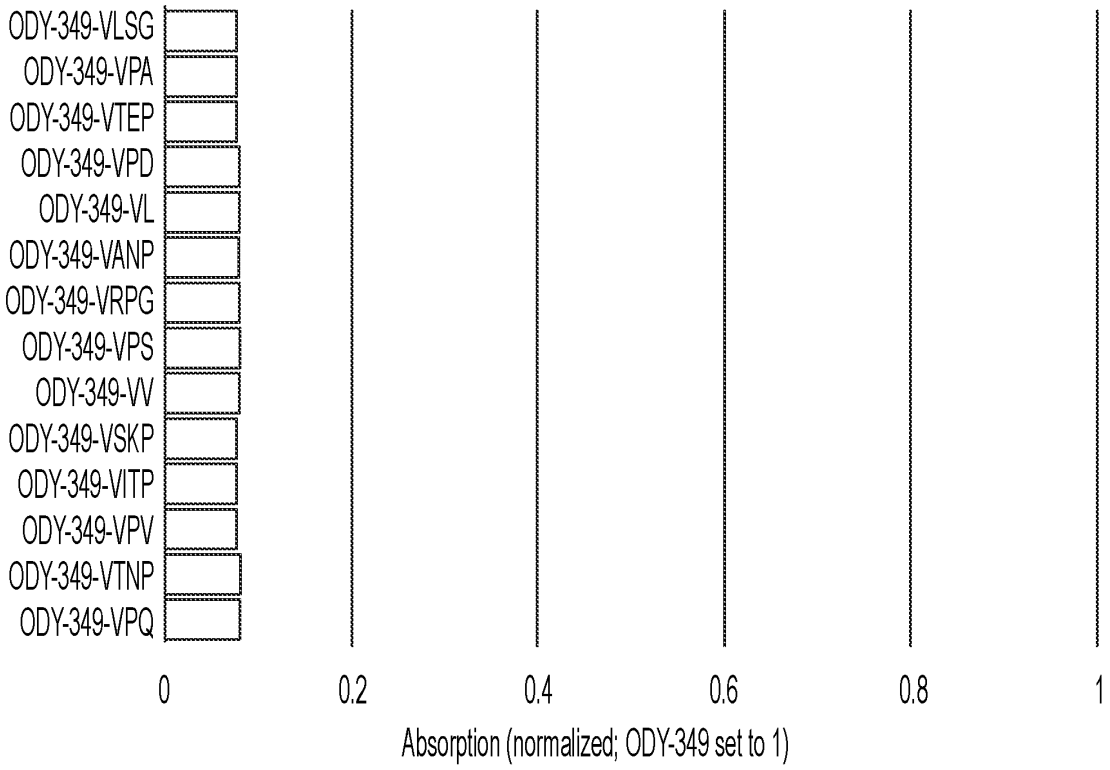
ODY-349-VLSG
ODY-349-VPA
ODY-349-VTEP
ODY-349-VPD
ODY-349-VL
ODY-349-VANP
ODY-349-VRPG
ODY-349-VPS
ODY-349-VV
ODY-349-VSKP
ODY-349-VITP
ODY-349-VPV
ODY-349-VTNP
ODY-349-VPQ
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4T

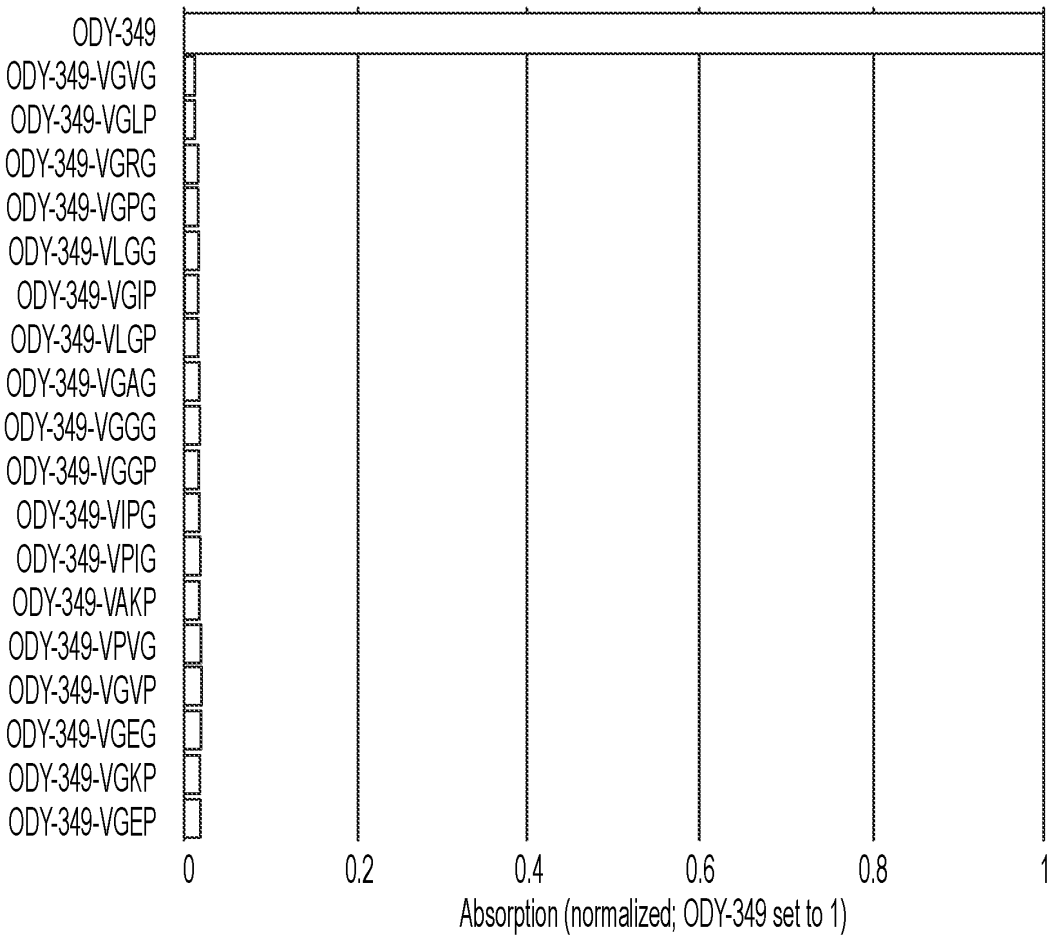
ODY-349
ODY-349-VGVG
ODY-349-VGLP
ODY-349-VGRG
ODY-349-VGPG
ODY-349-VLGG
ODY-349-VGIP
ODY-349-VLGP
ODY-349-VGAG
ODY-349-VGGG
ODY-349-VGGP
ODY-349-VIPG
ODY-349-VPIG
ODY-349-VAKP
ODY-349-VPVG
ODY-349-VGVP
ODY-349-VGEG
ODY-349-VGKP
ODY-349-VGEP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4U

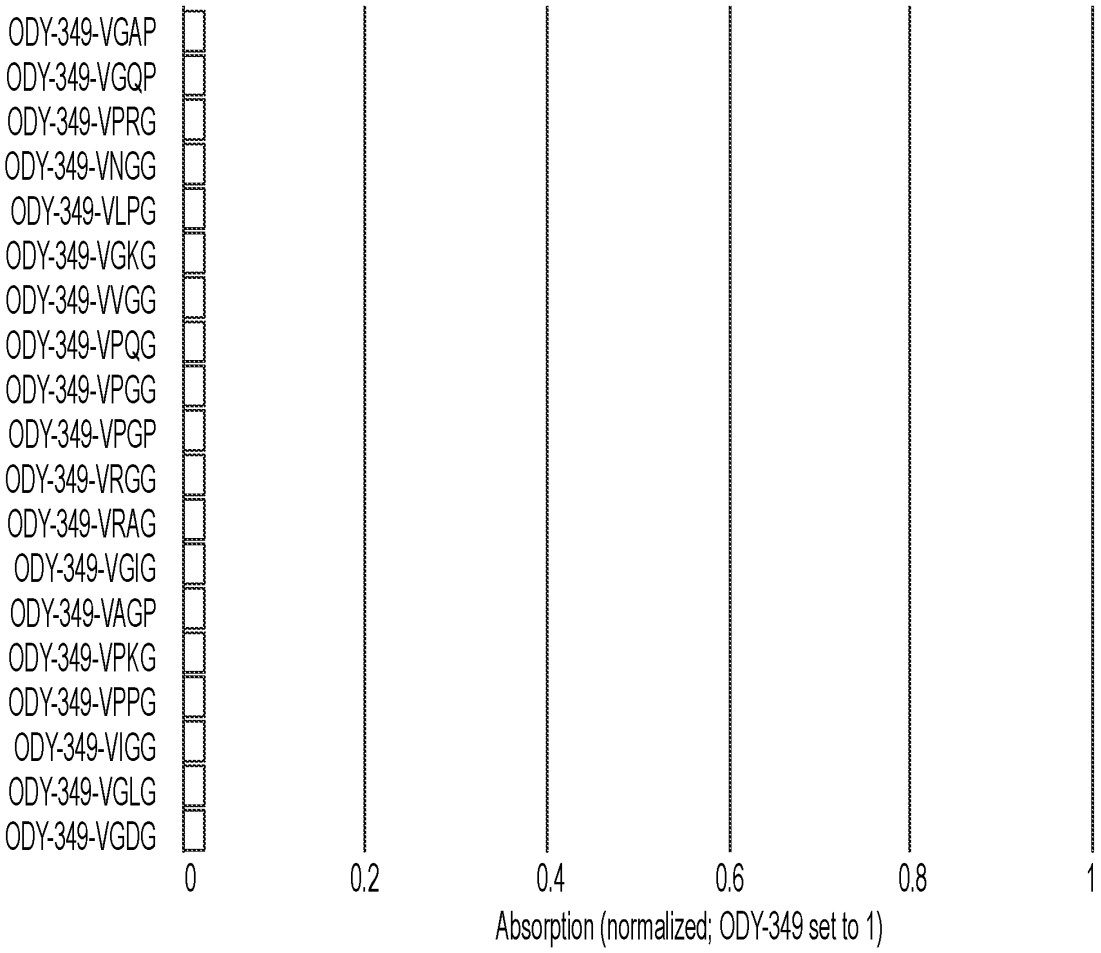
ODY-349-VGAP
ODY-349-VGQP
ODY-349-VPRG
ODY-349-VNGG
ODY-349-VLPG
ODY-349-VGKG
ODY-349-VVGG
ODY-349-VPQG
ODY-349-VPGG
ODY-349-VPGP
ODY-349-VRGG
ODY-349-VRAG
ODY-349-VGIG
ODY-349-VAGP
ODY-349-VPKG
ODY-349-VPPG
ODY-349-VIGG
ODY-349-VGLG
ODY-349-VGDG
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1)

FIG. 4V

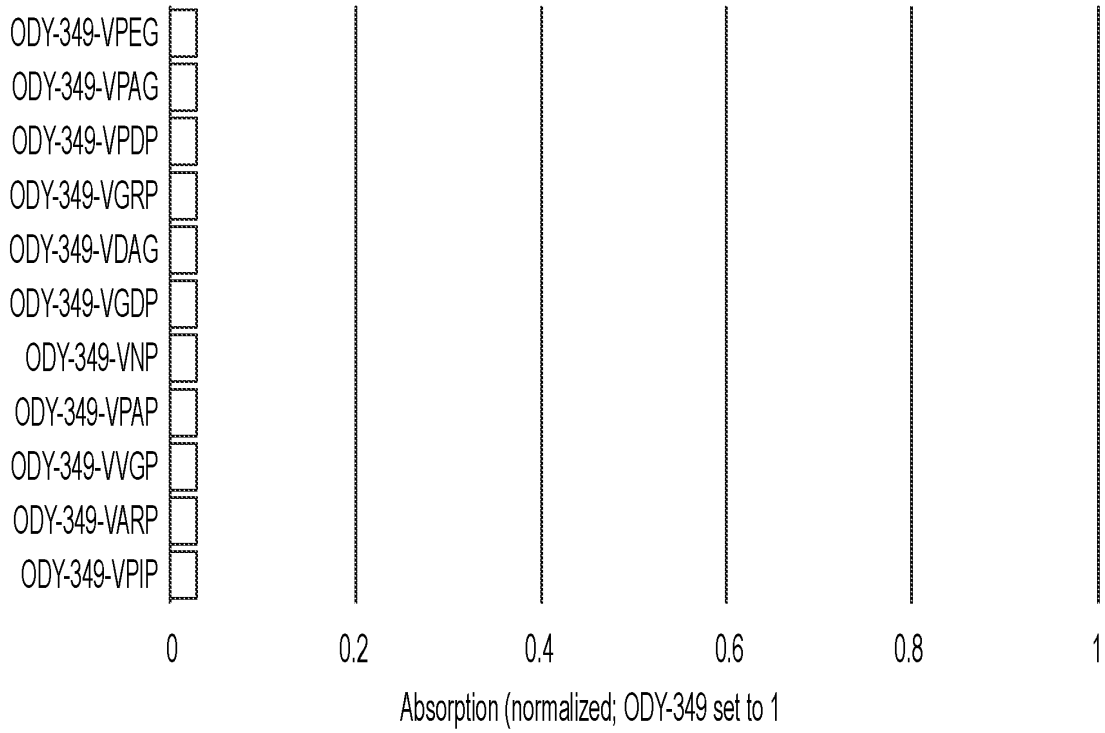
ODY-349-VPEG
ODY-349-VPAG
ODY-349-VPDP
ODY-349-VGRP
ODY-349-VDAG
ODY-349-VGDP
ODY-349-VNP
ODY-349-VPAP
ODY-349-VVGP
ODY-349-VARP
ODY-349-VPIP
0
0.2
0.4
0.6
0.8
1
Absorption (normalized; ODY-349 set to 1

FIG. 4W

Grayscale: Low point= 0, white

Mid point = 50 percent

High point = highest overall value

VXX	Δ	A	D	E	G	I	K	L
Δ	0.087							
A	0.123	0.665	0.507	0.428	0.427	0.410	0.417	0.488
D	0.126	0.188	0.175	0.134	0.109	0.107	0.126	0.136
E	0.092	0.169	0.127	0.118	0.100	0.105	0.126	N/A
G	0.119	0.394	0.240	0.204	0.225	0.178	0.200	0.276
I	0.076	0.274	0.195	0.162	0.163	0.131	0.146	0.194
K	0.048							
L	0.082	0.211	0.138	0.127	0.135	0.109	0.109	0.145
N	0.086	0.247	N/A	0.156	0.135	N/A	0.140	0.189
P	0.089	0.081	0.081	0.089	0.077	N/A	0.073	0.074
R	0.085	0.146	0.119	0.114	0.106	0.098	0.124	0.117
S	0.139	0.881	0.734	0.628	0.669	0.579	0.626	0.691
T	N/A	0.699	0.572	0.503	0.488	0.438	0.490	0.561
V	N/A	0.384	0.290	0.249	0.220	0.133	0.168	0.219

112 113

	N	P	Q	R	S	T	V
Δ							
A	0.545	0.345	0.479	0.492	0.680	0.524	0.453
D	0.167	0.137	0.135	0.147	0.192	0.145	0.119
E	0.185	N/A	0.149	0.156	0.193	N/A	N/A
G	0.281	0.157	0.230	0.256	N/A	N/A	0.218
I	N/A	0.181	0.175	0.194	0.304	N/A	0.151
K							
L	0.153	0.139	0.127	0.134	0.220	0.144	0.120
N	0.226	N/A	0.165	0.175	N/A	0.176	0.137
P	0.066	N/A	0.083	0.080	0.082	N/A	0.083
R	0.117	0.108	0.135	0.146	0.142	0.110	0.100
S	0.805	0.524	0.683	0.675	0.997	0.843	0.658
T	0.645	0.413	0.572	0.586	0.812	0.682	0.543
V	0.332	0.156	0.203	0.213	0.408	0.259	0.159

112 113

FIG. 5A

Grayscale: Low point= 0, white
Mid point = 50 percent
High point = highest overall value

VXXG

	A	D	E	G	I	K	L	113
A		0.045	0.056	0.037		0.041		
D	0.030			0.034				
E	0.119			0.080				
G	0.019	0.027	0.021	0.019	0.025	0.024	0.026	
I				0.026				
L				0.019				
N	0.076			0.023				
P	0.028	N/A	0.028	0.024	0.020	0.026	N/A	
R	0.025			0.025				
S	0.119	0.120	0.121	0.123	0.121	0.115	0.138	
T	0.085	0.122	0.129	0.068	0.121	0.075	0.117	
V				0.024				

112

	N	P	Q	R	S	T	V	113
A	0.101	0.041	0.037	0.038	0.084	0.113		
D		0.105			N/A	N/A		
E		0.094			0.079	0.134		
G	0.100	0.018	0.034	0.018	0.135	0.121	0.013	
I		0.020			0.089	0.089		
L		0.023			0.080	0.094		
N		0.072			0.125	0.114		
P	0.093	0.026	0.024	0.023	0.115	0.121	0.021	
R		0.082			0.095	0.095		
S	0.123	0.101	0.103	0.101		0.105	0.110	
T	0.115	0.099	0.105	0.102	0.085	0.095	0.111	
V		0.031			0.115	0.123		

112

FIG. 5B

Grayscale: Low point= 0, white

Mid point = 50 percent

High point = highest overall value

VXXP

112 \ 113	A	D	E	G	I	K	L
A		0.032	0.035	0.026		0.021	
D	0.044			0.035			
E	0.086			0.048			
G	0.023	0.030	0.022	0.019	0.019	0.022	0.015
I				0.032			
L				0.019			
N	0.064			0.084			
P	0.031	0.029	0.034	0.024	0.031	0.034	0.040
R	0.041			0.043			
S	0.119	0.112	0.121	0.125	0.072	0.082	0.090
T	0.097	0.080	0.081	0.067	0.064	0.072	0.084
V				0.031			

112 \ 113	N	P	Q	R	S	T	V
A	0.082	0.041	0.033	0.031	0.072	0.084	
D		N/A			0.097	0.101	
E		N/A			0.065	0.105	
G	0.084	0.033	0.023	0.029	0.064	0.072	N/A
I		N/A			0.061	0.083	
L		0.034			0.070	0.067	
N		N/A			0.102	0.087	
P	0.093	0.051	0.036	0.043	0.077	0.100	0.035
R		N/A			0.125	0.117	
S	0.090	0.096	0.099	0.076		0.084	0.070
T	0.083	0.078	0.067	0.059	0.070	0.141	0.061
V		N/A			0.057	0.055	

FIG. 5C

Grayscale: Low point= 0, white
Mid point = 50 percent
High point = highest overall value

Framework Mutations

	L11	Q13	T87	G88	V89	L108
A	0.400	1.000	0.554	1.000	1.000	0.985
D	0.225	0.852	0.482	0.787	0.864	0.772
E	0.218	1.000	0.413	N/A	0.992	0.733
I	0.775	1.000	0.644	N/A	1.000	1.000
K	0.189	1.000	0.433	N/A	0.889	0.668
L		1.000	0.657	N/A	0.973	
N	0.371	0.982	0.654	N/A	0.894	0.893
Q	0.412		0.533	N/A	0.968	0.877
R	0.208	1.000	0.508	0.696	0.878	0.762
S	0.356	1.000	0.843	1.000	0.888	0.893
T	0.509	1.000		N/A	0.856	1.000
V	0.783	1.000	0.628	N/A		1.000
Y	0.527	1.000	0.678	N/A	0.863	0.982

FIG. 5D

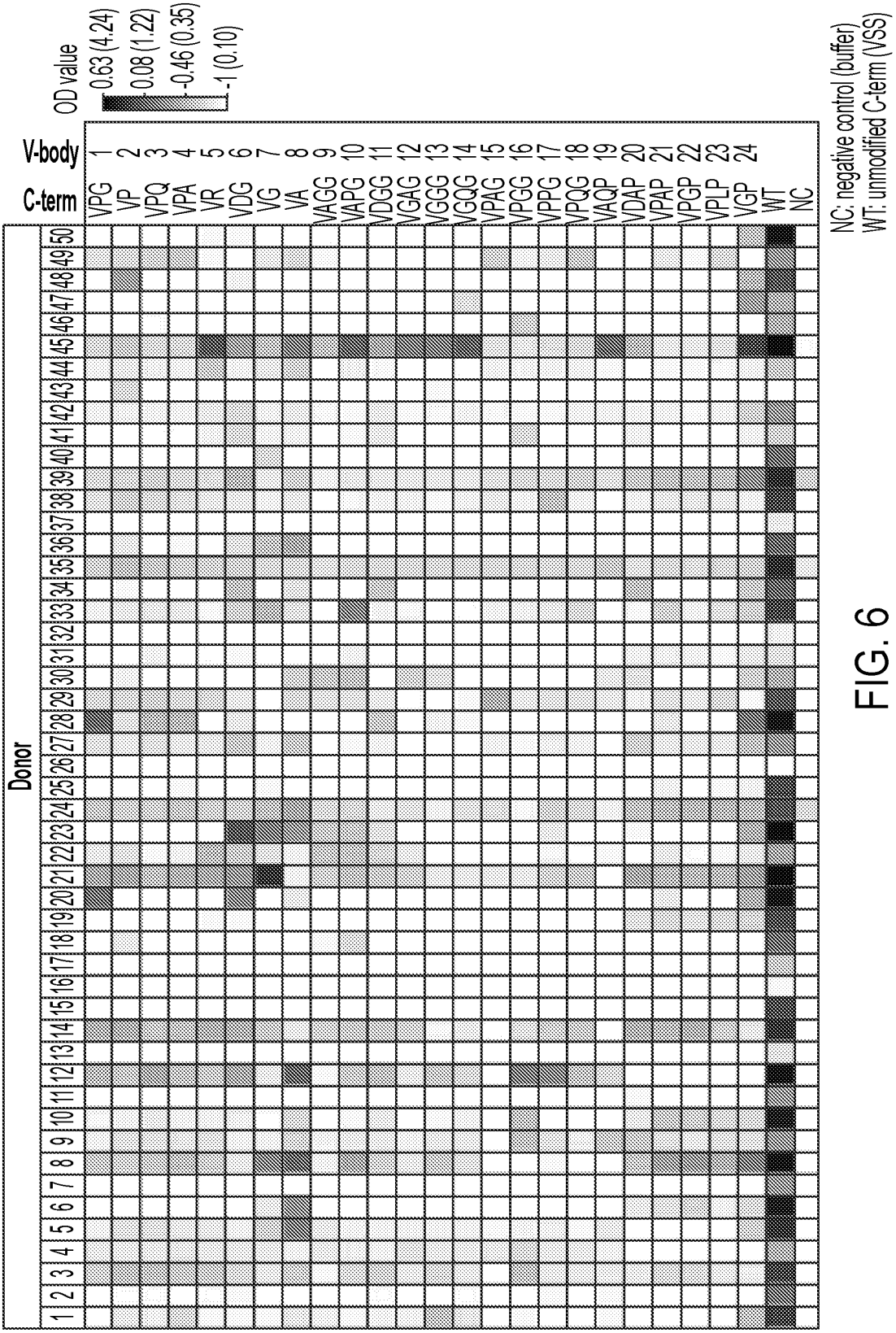
OD value
0.63 (4.24)
0.08 (1.22)
-0.46 (0.35)
-1 (0.10)
V-body
C-term
VPG
VP
VPQ
VPA
VR
VDG
VG
VA
VAGG
VAPG
VDGG
VGAG
VGGG
VGQG
VPAG
VPGG
VPPG
VPQG
VAQP
VDAP
VPAP
VPGP
VPLP
VGP
WT
NC
Donor
NC: negative control (buffer)
WT: unmodified C-term (VSS)

FIG. 6

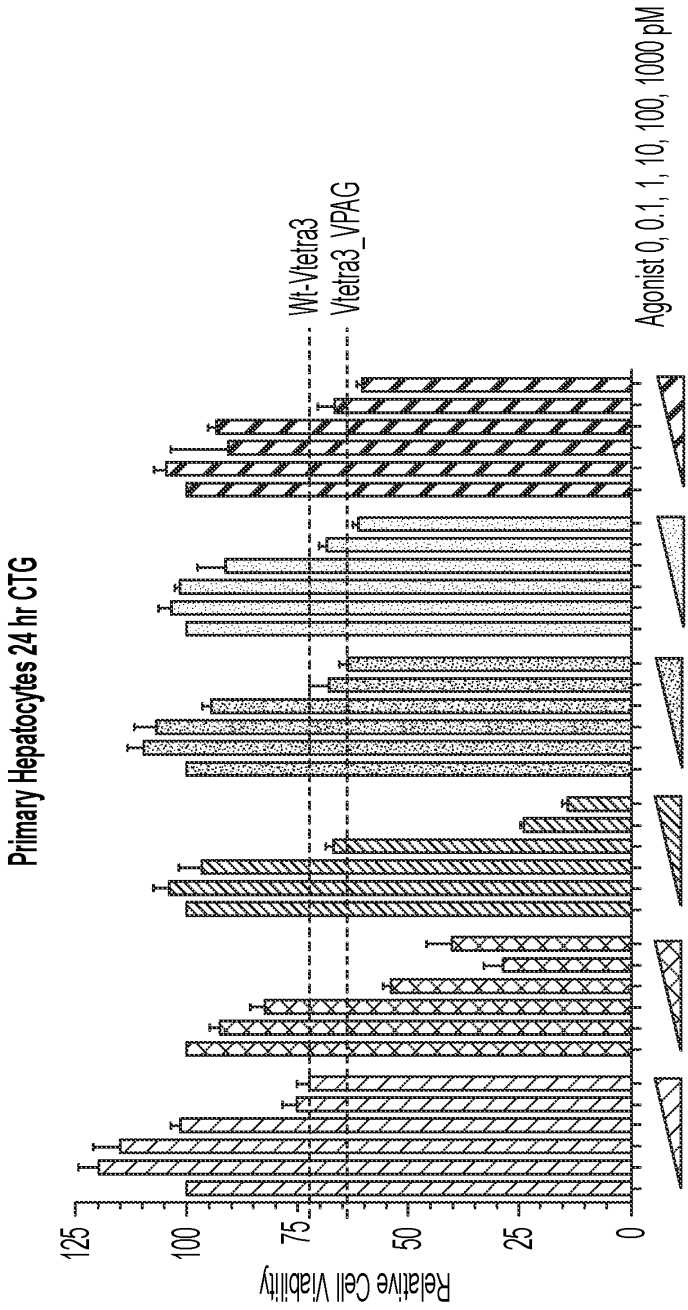
Primary Hepatocytes 24 hr CTG
Relative Cell Viability
125
100
75
50
25
0
Wt-Vtetra3
Vtetra3_VPAG
Agonist 0, 0.1, 1, 10, 100, 1000 pM
IVIG (pre-ADA) mg/ml
0
0.1
1
0
0.1
1
wt\Vtetra3
Vtetra3_VPAG

FIG. 7A

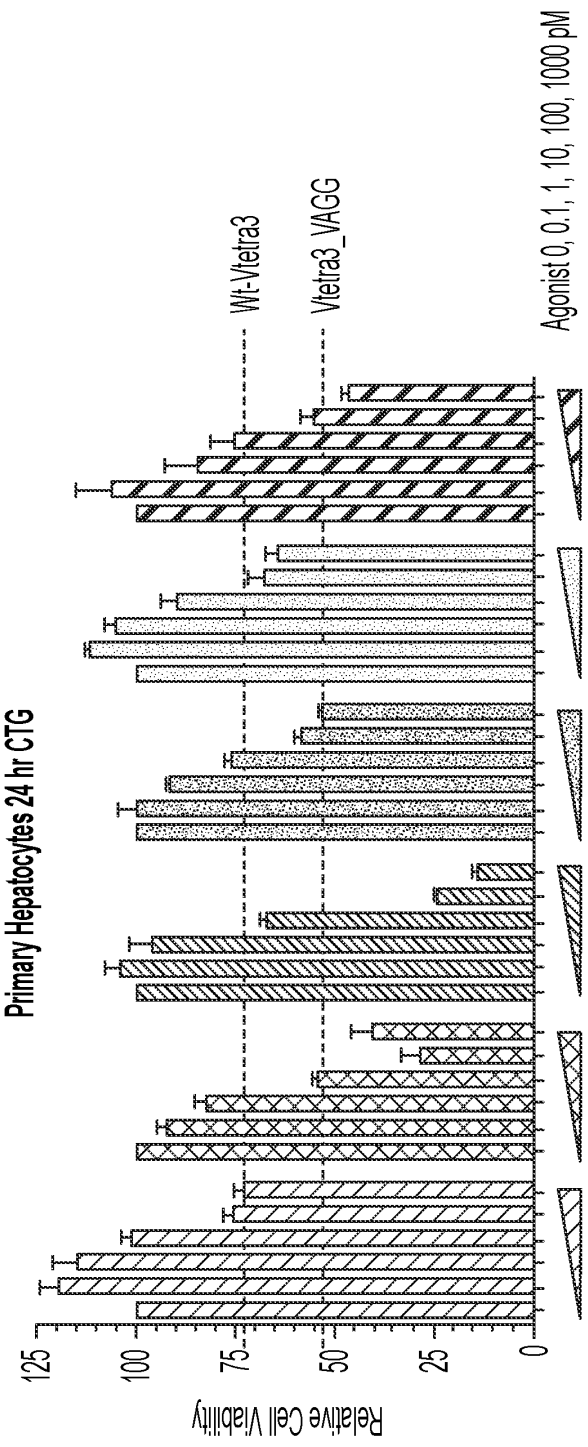
Primary Hepatocytes 24 hr CTG
Relative Cell Viability
125
100
75
50
25
0
Wt-Vtetra3
Vtetra3_VAGG
Agonist 0, 0.1, 1, 10, 100, 1000 pM
IVIG (pre-ADA) mg/ml
0
0.1
1
0
0.1
1
wtVtetra3
Vtetra3_VAGG

FIG. 7B