Supporting Information

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Fig. S1. Density map and molecular structure of KNH1144 glycoprotein gp140 trimers with a V3-containing gp120. (*A* and *B*) Transparent isosurface representations of the density map for trimeric KNH1144 gp140 (in blue), shown superposed with the density map (wire mesh) and a molecular model for trimeric gp120 containing the V3 loop (Protein Data Bank ID 2B4C) via docking of coordinates into the gp140 density. The arrow points to the V3 loop region on one gp140 protomer. The density representing the lipid bilayer is colored gray in *A*.

A gp140-JRFL

1	4	-1	4	4	4	4	4	4	4	-	-4	4	4	4	4	4	4	٠
2	4	4	-1	-1	-1	-1	et.	et.	-1	-1	~	~2	~2	~2	~2	et.	~2	~2
3	4	4	4	4	4	*	4	4	~	~	~	~	et.	et.	n	ત	n	n
4	4	4	4	4	4	et.	4	4	4	et.	et.	et.	et.	et	n	n	n	n
5	4	4	4	4	4	*	4	4	-2	~	~	~	et.	et.	rt.	n	n	n
6	4	4	4	4	4	4	4	4	4	4	et.	et.	et.	et.	rt.	rt	rt.	rt.
7	4	4	4	-4	4	*	-4	-1	~2	~2	et.	et	et.	et.	rt.	rt.	rt.	n

B gp140-JRFL-sCD4

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1	6	6	6	6	6	е,	4	-0	-0	-0	-6	-0	-0	-8	s	3	3	4
2	٠,	et.	<i>e</i> 6	÷¢.	ŵ.	ŵ.	à.	à.	à.	à.	à.	à.	à.	ŝ.	ŝ.	$\hat{\vec{n}}$	$\hat{\mathcal{R}}_{i}$	$\widehat{\mathcal{R}}$
3	et.	R.	à.	à.	à.	à.	à.	à.	ż.	ż.	à.	ż.	$\hat{\vec{n}}$	ŝ.	ŝ.	ŝ.	ŝ.	ŝ.
4		R	à.	à.	à.	à.	à.	ñ.	ñ.	ñ.	ñ.	ŝ.	$\hat{\mathcal{R}}$	ŝ.	ŝ.	ŝ.	÷.	
5	*	a.	à.	à	à.	à.	à.	ż.	ż.	ż.	à.	ż.	$\hat{\mathcal{R}}_{i}$	$\hat{\mathcal{R}}$	$\hat{\mathcal{X}}$	ŝ.	$\hat{\mathcal{R}}_{i}$	
6	÷.	R	à.	à.	à.	à.	à.	à.	ż.	ż.	ż.	÷.	$\hat{\vec{x}}_{i}$	ŝ.	ŝ.	ŝ.	$\hat{\mathcal{R}}$	ŝ.
7	a.	a.	÷.	à.	à.	à.	à.	*	*	<i>à</i> .	<i>.</i>	à.	à.	ŝ.	ŝ.	ž.	ŝ.	ar.

Fig. 52. Illustration of progressive refinement of glycoprotein gp140 datasets during successive refinement iterations; (A) gp140 JR-FL, (B) gp140 JR-FL with soluble CD4. Rows represent successive refinement iterations, with panels in each row representing successive slices through the density map for that iteration. Threefold symmetry was imposed after the third round of iteration once the presence of symmetry was ascertained.

A gp140-JRFL-sCD4-17b

1					-	\$	-	4	4	4	4	ŵ	÷	÷	Ť	ŵ	÷	÷
2	8	st.	st.	ŝ.	ŝ.	à.	à.	$\hat{\vec{x}}_{i}$	ŝ.	ŝ.	ŝ	ŝ	ň	ñ.	ň.	ň	ñe.	ň
3	8	ŝ.	à.	à.	à.	à.	ŵ.	ŵ.	ż.	ŵ	ŵ	ŝ	ŝ.	ñe.	ž.	ñ.	ñe.	ñ.
4	8	ŝ.	ŝ.	à.	ŵ.	ŵ.	ż.	ż.	ŝ.	ŝ.	ŝ.	ŝ.	ŝe.	ñ.	ž.	ñ.	$\hat{\mathcal{M}}$	ñ.
5	8	ŝ.	à.	à.	ŵ.	ŵ.	ż.	ż.	ŝ.	ŝ.	ŝ.	ŝ.	ż.	ñe.	ň.	ñ.	$\tilde{\mathcal{M}}$	ñ.
6	8	ŝ.	ŝ.	à.	ŵ.	ŵ.	ż.	ż.	ġ.	ŵ	ŝ.	ŝ.	ñ.	ñe.	ň.	ñ.	ste.	ñ.
7	8	ŵ.	ŵ.	à.	ŵ.	ŵ.	ż.	ż.	ż.	ŵ	ŝ.	ŝ.	ñ.	ñ.	ñ.	ñ.	\tilde{m}	ir.

B gp140-JRFL-17b

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1	•	۰	٠	٠	÷	æ	٠	٠	æ	÷	40	40	\$	20	3	b.	×.	$\langle b \rangle$
2	÷	×	۶	*	۶	¥	Þ	¥	÷	\$P	ş,	ş,	*	34	*	*	*	30
3	P	۲	۲	۲	۴	۴	۴	۶	r	۶	ş,	ş,	20	2	2	*	*	*
4	Þ	۶	۲	۲	۶	p	P	۶	24	24	ş,	ş,	20	24	*	*	*	20
5	P	۲	۲	۲	24	¥	×	¥	74	24	24	20	20	24	2	*	*	20
6	P	¥	۲	*	71	71	\mathbf{p}	21	74	24	r	v	20	20	20	*	*	*
7	Þ	۶	*	*	*	71	*	21	24	24	21	20	24	20	÷.	*	r.	70

Fig. S3. Illustration of progressive refinement of glycoprotein gp140 datasets during successive refinement iterations; (*A*) gp140 JR-FL with soluble CD4 and 17b Fab, (*B*), gp140 JR-FL with 17b Fab. Rows represent successive refinement iterations, with panels in each row representing successive slices through the density map for that iteration. Threefold symmetry was imposed after the third round of iteration once the presence of symmetry was ascertained.