

**Supplementary Materials:**

**Crystal structure of native *Anopheles gambiae* Serpin-2, a negative regulator of melanization in mosquitoes**

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Supplementary figure legends

Table S1: Structural comparison of *An. gambiae* SRPN2 with other serpins

Figure S1: 2Fo-Fc electron density map of loop insertion in the  $P6_3$  crystal form.

Figure S2: 2Fo-Fc electron density map of loop insertion in the  $I4_132$  crystal form.

Figure S3. The heparin binding site of ATIII is not conserved in SRPN2.

## SUPPLEMENTARY FIGURE LEGENDS

**Figure S1.** 2Fo-Fc electron density map contoured at  $1\sigma$  for the  $P6_3$  crystal form of the RCL residues (green) that are inserted between the two  $\beta$ -strands (magenta).

**Figure S2.** 2Fo-Fc electron density map contoured at  $1\sigma$  for the  $I4_132$  crystal form of SRPN2 showing the backbone trace of the loop insertion.

**Figure S3. The heparin binding site of ATIII is not conserved in SRPN2.** (A) Surface electrostatic potential representation of heparin bound ATIII (PDB: 2GD4). View is perpendicular to the heparin binding site of antithrombin III and the heparin is shown in green as a reference. (B) Surface electrostatic potential representation of Spn48 (PDB:3OZQ), view perpendicular to putative heparin-binding site, which is indicated by yellow arrowheads. Neither binding site is conserved in SRPN2 (C, D). Positive and negative charges are colored blue and red, respectively.

## SUPPLEMENTARY TABLE

**Table S1. Secondary structure comparison of *An. gambiae* SRPN2 with other serpins.**

<b>Protein</b>	<b>Organism</b>	<b>PDB ID</b>	<b>Hinge insertion</b>	<b>RMSD (Å)</b>
Serpin 1K	<i>Manduca sexta</i>	1K9O	no	1.72
Serpin 1B A353K	<i>Manduca sexta</i>	1SEK	no	1.65
Antithrombin III	<i>Homo sapiens</i>	1T1F	yes	1.71
Antithrombin-S195A	<i>Homo sapiens</i>	2GD4	no	1.66
Spn48	<i>Tenebrio molitor</i>	3OZQ	yes	1.56
Murine chymotrypsin	<i>Mus musculus</i>	1YXA	yes	1.62
heparin cofactor II	<i>Homo sapiens</i>	1JMJ	yes	1.82

Figure S1

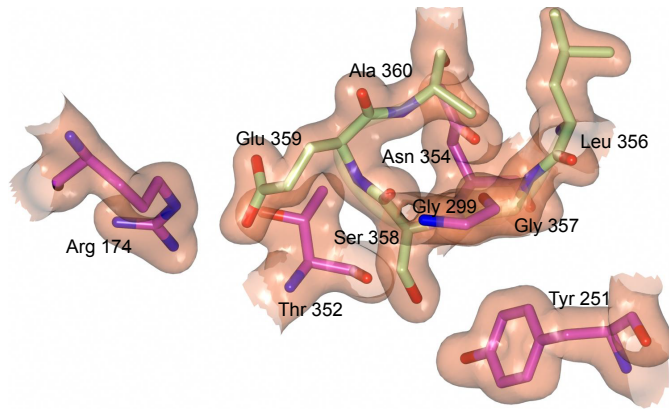


Figure S2

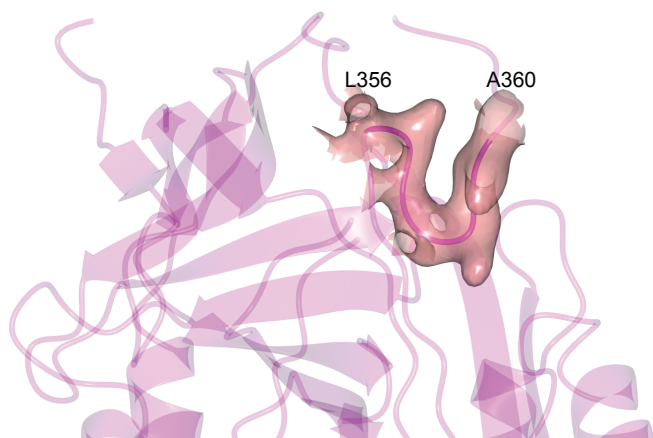


Figure S3

