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Blocking of Axl receptor for prevention of Zika virus entry into neuroepithelial cells could be a general strategy against *Flavivirus* infection

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Zika virus belongs to the family of *Flaviviruses*. It evoked a worldwide attention after a large outbreak in Brazil in 2014. New drugs against Zika virus and flaviviridae in general are highly desirable. It has been observed by researchers that the attachment of the *flavivirus*es to the host cell occurs in the case when the glycosylation of the asparagine in the envelope protein of the virus takes place. However, the viral proteins are quite sensitive and can easily undergo mutation. Therefore, the focus was switched to the host target. Following this idea we have found in the recently published literature that the *Flavivirus* internalization to the host cell is mediated by the Axl (one of the proteins from TAM family) receptor; in particular, when the dimerization of the last one with its ligand Gas6 takes place. Gas6 binds to the glycosylated protein in the envelope of the virus, hence, facilitating the attachment and entry of the virus into the host cell. Herein, we hypothesize that the blocking of a host-factor, the Axl receptor, could be a best way to block Zika virus infection cycle. Instead of directly targeting the virus, we suggest improved compounds targeting Axl-Gas6 interaction site by *in silico* modification of the known Axl blockers; an anticoagulant drug Warfarin and an anticancer drug R428. We have obtained better binding for both extending modifications, which was shown by docking simulation results.

Biography

Edita Sarukhanyan has obtained her Bachelor and Master of Science degrees in Physics (Biophysics) from Tbilisi State University in Georgia. In 2013, she has received PhD title in Chemistry (Computational Chemistry) from the Joint International PhD Program between University of Salerno in Italy and Jacobs University Bremen in Germany. Her thesis work was related to multiscale simulation studies of interactions of carbon nanotubes with biopolymers and lipid membranes. Since 2015, she is a Postdoctoral Researcher at the University of Würzburg in Germany. Her current research is mainly focused on *in silico* drug design and development.

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