



Desired Product Attributes

Small Molecule Broad-spectrum Antiviral for Togaviruses/Flaviviruses

This document outlines Desired Product Attributes that applicants may find useful when shaping antiviral concepts for submission to the SMART Antiviral Prize. These attributes are provided as a draft and are subject to change as the Prize design is further refined.

Attribute	Minimal	Ideal
Indication for Use	<ul style="list-style-type: none"> Treatment of acute, laboratory-confirmed infection caused by viruses within the <i>Flaviviridae</i> and/or <i>Togaviridae</i> family 	<ul style="list-style-type: none"> Treatment and prophylaxis Family wide label supported by bridging across a prespecified breadth panel
Mechanism of Action	<ul style="list-style-type: none"> Direct-acting antiviral (targets highly conserved viral factors) or indirect-acting antiviral (targets host factors required for viral entry, replication, and/or persistence) 	
Antiviral Activity (Breadth and Resistance)	<ul style="list-style-type: none"> EC50 \leq1 μM across all viruses in a predefined breadth panel Documented, acceptable level of resistance development with understanding of potential resistance across viral species 	<ul style="list-style-type: none"> EC50 \leq100 nM across all viruses in a predefined breadth panel; EC50 \leq1 μM across ALL pathogenic viruses within the family No evidence of emergence of resistance in clinical trials
Target Population	All populations, e.g., pediatrics (incl. neonates), adults, older adults, pregnant/lactating, immunocompromised	
Contraindications, Use, Adverse Reactions and Drug Interactions	<ul style="list-style-type: none"> Acceptable adverse event rate vs. benefit; manageable toxicity No black box warning or major precautions No embryo-fetal toxicity Some contraindications tolerated No severe interactions with routine drugs; monitor CYP pathway; may need dose adjustment with other medications Compatible with potential standard of care (SOC) options 	<ul style="list-style-type: none"> Well tolerated, mild or no side effects No significant contraindications or DDIs; compatible with most therapies
Clinical Efficacy	<ul style="list-style-type: none"> Clinically meaningful improvement in time to symptom resolution for acute 	<ul style="list-style-type: none"> Clinically meaningful reduction in symptom severity/progression to severe disease or hospitalization

	infections when compared to untreated patients	and strong prevention of progression or transmission, if applicable <ul style="list-style-type: none"> • Prevention of chronic symptoms/post-viral sequelae • Safety and tolerability profile supports evaluation for prophylactic indications
Clinical Pharmacology	<ul style="list-style-type: none"> • Defined PK/PD; dosing maintains EC90 in target tissue(s) • Antiviral activity (e.g., protein-adjusted 90% effective concentration pa-EC90)) supporting a PK/PD Index (PDI) ≥ 3 (e.g., predicted Ctrough/pa-EC90) 	<ul style="list-style-type: none"> • Predictable and consistent PK/PD in all sub-populations; long half-life • Dosing maintains 3x EC90 in target tissue(s) • Antiviral activity supporting PDI ≥ 10 where feasible
Therapeutic Modality	Small molecule (at or below 900 daltons)	
Therapeutic Window	<ul style="list-style-type: none"> • Within 48 hours from symptom onset 	<ul style="list-style-type: none"> • Maintains effectiveness when started 5 days from symptom onset; effective even with delayed diagnosis • Suitable for treatment with extended protection providing sustained viral clearance for persistent infections
Dose Regimen	<ul style="list-style-type: none"> • 3 doses/day for up to 14 days, or as needed based on diseaseⁱ 	<ul style="list-style-type: none"> • Single dose
Route of Administration	<ul style="list-style-type: none"> • Oral 	<ul style="list-style-type: none"> • Multiple routes, including oral and parenteral
Storage and Stability	<ul style="list-style-type: none"> • ≥ 2 years at 2-8°C and/or RT, stable in field conditions 	<ul style="list-style-type: none"> • ≥ 3 years at controlled RT, compatible with pandemic deployment
Regulatory Path, Registration	<ul style="list-style-type: none"> • NDA 	

ⁱ Persistent infections caused by Chikungunya lead to prolonged viral presence (up to 28 days) and may need longer duration of treatment for sustained viral clearance.