

BX-515

Lassivar — a GPC-B site human monoclonal antibody for Lassa fever.

Lassa fever infects an estimated 100,000 to 300,000 people a year across West Africa and kills roughly one in five of those admitted to hospital. Ribavirin is used off-label on evidence that has not held up to re-analysis. There is no licensed treatment and no licensed vaccine.

Indication	Lassa fever (Lassa virus infection), including treatment of hospitalised disease and post-exposure prophylaxis after a recognised high-risk exposure.
Modality	Human IgG1 monoclonal antibody, intravenous
Target	GPC-B antigenic site spanning the GP1–GP2 interface of the Lassa virus glycoprotein complex
Route and schedule	Single intravenous infusion of 30 mg/kg over 60 minutes; a second dose at day 7 is under evaluation
Development stage	Phase 1, healthy volunteers
Current study	TRAVERSE-1 (NCT-BX0515-01) — randomised, double-blind, placebo-controlled single ascending dose study with an open-label repeat-dose cohort
Containment	BSL-4 for all live-virus work; Risk Group 4 pathogen; federal select agent registration
Regulatory pathway	FDA Animal Rule, 21 CFR 314 Subpart I

Mechanism of action

Lassa virus enters cells using a trimeric glycoprotein complex in which GP1 carries the receptor-binding function and GP2 carries the fusion machinery, held together in a metastable arrangement that is unusually sensitive to disruption. BX-515 binds the GPC-B antigenic site, a quaternary epitope that exists only on the assembled prefusion trimer and spans the GP1–GP2 interface. Binding cross-links the two subunits and prevents the pH-triggered conformational change required for membrane fusion in the late endosome, so the genome is never delivered to the cytoplasm. Because the epitope is quaternary rather than linear, single amino acid substitutions rarely abolish binding without also destabilising the trimer, which is the basis for the resistance profile observed in vitro. Neutralisation is retained across Lassa lineages II, III and IV, which together account for the great majority of sequenced human cases.

Why this disease

Lassa virus is an Old World arenavirus whose reservoir is the multimammate rat, *Mastomys natalensis*, an animal that lives comfortably inside West African houses. Spillover is therefore not an event but a season: cases rise every year between December and March as rodent populations move indoors, and the reservoir cannot be eliminated. Transmission to people happens through contaminated food and dust, and from person to person through blood and body fluids, which is why healthcare workers are repeatedly infected.

Approximately 80 per cent of infections are mild or subclinical, which is precisely the problem: the 20 per cent that are not present late, with fever, retrosternal pain, vomiting and bleeding, by which time viraemia is high and the therapeutic window has largely closed. Sensorineural hearing loss follows in around a quarter of survivors and is often permanent and bilateral. In pregnancy, fetal loss approaches 90 per cent and maternal mortality rises sharply in the third trimester.

Ribavirin has been used since a 1979 trial whose design and analysis have since been re-examined and found not to support the conclusion drawn from it. It remains in use because there is nothing else. That is the gap BX-515 is intended to close.

The disease at a glance

Feature	Detail	Why it matters
Case fatality	~15–20% of hospitalised cases; up to 80% in nosocomial clusters	A modest treatment effect translates into large absolute benefit
Estimated burden	100,000–300,000 infections a year	Among the largest of the viral haemorrhagic fevers
Reservoir	Mastomys natalensis, a peridomestic rodent	Spillover is seasonal, recurrent and cannot be eradicated
Transmission	Rodent excreta, contaminated food, person to person	Nosocomial amplification is documented in every large outbreak
Incubation	Typically 6–21 days	A genuine window for post-exposure prophylaxis
Sequelae	Sensorineural hearing loss in ~25% of survivors	Survival alone is not an adequate endpoint
Available therapy	None licensed; ribavirin used off-label	The evidence for current practice does not withstand re-analysis
Biosafety	Risk Group 4, BSL-4, select agent	Live work is restricted to a small number of registered facilities

Preclinical and pharmacology package

- Terminal half-life 24 days at 30 mg/kg, supporting a single-visit therapeutic regimen and a post-exposure prophylaxis regimen given at the point of contact tracing.
- Serum neutralising titre remained above the in vitro IC90 for 42 days after a single 30 mg/kg dose.
- In vitro neutralisation retained against Lassa lineages II, III and IV; reduced but measurable against lineage I, which has not been associated with human outbreaks.
- Escape selection over 20 passages produced two substitutions in GP2, both of which reduced viral fitness by more than a log in competition assay.
- No anti-drug antibody detected in 20 of 22 participants; two low-titre transient responses without effect on exposure.
- IND-enabling toxicology completed in the cynomolgus macaque; no target-organ toxicity at 10-fold the anticipated clinical exposure.

Clinical development — TRAVERSE-1

Design	Randomised, double-blind, placebo-controlled single ascending dose study with an open-label repeat-dose cohort
Population	Healthy adult volunteers aged 18–60. No participant is exposed to Lassa virus at any point.

Sites	Three, United States
Enrolment	22 of 40 as of 31 July 2026
Doses studied	3, 10, 30 and 60 mg/kg single intravenous doses; one 30 mg/kg + 30 mg/kg repeat cohort
Primary objective	Safety and tolerability, including infusion-related reactions
Key secondary	Pharmacokinetics and serum half-life; immunogenicity (anti-drug antibody); ex vivo neutralisation titre against Lassa lineages II, III and IV; complement and cytokine markers
Status	Recruiting; single-dose cohorts 1–3 complete, cohort 4 open

Safety observed to date

Most frequent ($\geq 20\%$): headache, infusion-site discomfort, fatigue. Grade ≥ 3 observed in 5 per cent of participants: transient neutrophil count decreased. No infusion reaction met grade 3 criteria and no participant discontinued for a treatment-related event.

Warnings and monitoring in the protocol

Investigational agent. Infusion-related reactions occurred in 9 per cent of participants and were all grade 1 to 2, managed by slowing the infusion rate. Participants are observed for four hours after the first infusion with resuscitation equipment immediately available. Not to be used outside a clinical trial or an authorised expanded access or emergency use framework. Handling of Lassa virus itself is restricted to registered maximum-containment facilities; this product is not a substitute for containment, isolation or personal protective equipment.

Development milestones

Date	Milestone	Status
Q4 2026	TRAVERSE-1 single-dose cohort 4 completion and full pharmacokinetic readout	Planned
Q1 2027	Repeat-dose cohort readout and immunogenicity analysis	Planned
Q2 2027	Non-human primate pivotal efficacy study, treatment arm	Planned
Q3 2027	Non-human primate post-exposure prophylaxis arm	Planned
2027	End-of-Phase-1 meeting and Animal Rule package alignment	Planned
2028	Field-readiness protocol with endemic-country investigators	Under discussion

Regulatory status and pathway

Investigational New Drug application cleared in February 2026. There is no approval of any kind in any jurisdiction. Human efficacy trials in Lassa fever are feasible in principle, unlike Nipah or Marburg, because case numbers in the Nigerian season are substantial. The programme is therefore being built to support both routes: an Animal Rule package under 21 CFR 314 Subpart I, and a protocol for a randomised controlled treatment trial at endemic-country sites that could be activated in a future season. Orphan drug designation has been requested. Designations are not

approvals and none has yet been granted.

Biosafety and handling

Lassa virus is a Risk Group 4 organism. All live-virus neutralisation, escape selection and animal challenge work is performed inside the Palm Coast maximum-containment suite under federal select agent registration, in positive-pressure suits, behind an airlock, with effluent decontamination. Clinical sites handle no infectious material of any kind. Clinicians managing a suspected case should apply standard viral haemorrhagic fever precautions, notify their public health authority before sending samples, and not ship specimens without prior arrangement with the receiving reference laboratory.

For volunteers in TRAVERSE-1

- No participant is exposed to the target pathogen or to any infectious material at any point.
- Screening includes medical history, physical examination, laboratory tests and an electrocardiogram.
- Participation involves scheduled clinic visits or a residential period, and serial blood sampling.
- A safety follow-up visit takes place approximately 30 days after the last dose.
- Taking part is voluntary; a participant may withdraw at any time, for any reason or none.
- All study procedures and study medicine are provided at no cost, and reasonable travel expenses are reimbursed.
- Suspected side effects can also be reported directly to the FDA through MedWatch.

Important. BX-515 is an investigational medical countermeasure. It has not been approved by any regulatory authority, and its safety and efficacy have not been established. This document is for information only. It is not medical advice, not biosafety guidance, not an offer to sell or a solicitation to buy securities, and not a promise that this programme will succeed. BX-515 is not available on prescription. Requests for expanded access or emergency use in a confirmed or strongly suspected case can be made by a treating physician through the medical information route at baxtra.pages.dev/patients.html.

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