The Schistosome and Snail Resource (SSR): Enabling Access to Live Schistosome and Snail Resources for Translational Research

Fernanda Sales Coelho[1], Adam Cieplinski[2], Fiona Allan[1], Vanessa Yardley[1], Aidan Emery[2], Amaya Bustinduy[1], Bonnie Webster[2].

[1] London School of Hygiene & Tropical Medicine, Keppel Street, WC1E 7HT, London, UK
[2] Natural History Museum, Cromwell Road, SW7 5BD, London, UK

Submitting author: Fernanda Sales Coelho, fernandasalesc@gmail.com

The Schistosome Snail Resource (SSR) is a biomedical infrastructure funded by the Wellcome Trust and jointly managed by the London School of Hygiene and Tropical Medicine and the Natural History Museum. It supports international schistosomiasis research by maintaining and distributing complete *Schistosoma* life-cycles and their molluscan intermediate hosts. Sustaining these complex biological systems is technically demanding and requires specialised facilities, skilled personnel, and rigorous quality control. Many research groups worldwide depend on centralised providers, particularly the Schistosomiasis Resource Centre at the Biomedical Research Institute in the United States, the largest and most widely used supplier. However, access from Europe and other regions is frequently constrained by regulatory and logistical barriers. Other centres, including the Instituto Oswaldo Cruz - Fiocruz in Brazil and the Université de Perpignan Via Domitia in France, maintain selected strains, while smaller facilities generally operate life-cycles for internal use. In this context, the SSR provides an open-access, UK-based platform that expands research capacity and promotes equitable access to high-quality material. The SSR currently maintains active life-cycles of *Schistosoma mansoni*, and *S. haematobium*, alongside multiple species and strains of intermediate host snails, including *Biomphalaria glabrata*, *Bulinus truncatus*, *B. truncatus truncatus*, *B. wrighti*, *B. africanus*, and *Radix (Lymnaea) natalensis*. Plans for expansion include incorporating field-derived isolates and veterinary *Schistosoma* species of zoonotic relevance. Although geographically distinct strains exist in individual laboratories, they are rarely accessible as shared resources. Broader parasite diversity is essential for translational research, as genetic and geographical variation influences vaccine and drug development and the validation of human, snail, and environmental diagnostics. Increasing recognition of hybrid parasites in natural settings further highlights the need to investigate interspecific interactions and their epidemiological implications. Expanding access to diverse field and veterinary isolates will strengthen the biological and public health relevance of schistosomiasis research. The SSR supplies live and preserved parasites (cercariae, miracidia, adults and eggs), infected and uninfected snails, molecular-grade DNA, and

specialised reagents such as Soluble Egg Antigen (SEA). These materials underpin research in molecular biology, immunology, vaccine development, diagnostics, and transmission biology. Beyond material provision, the SSR supports capacity building through protocol sharing, technical guidance, and training, promoting harmonisation and reproducibility across laboratories. Between 2023 and 2025, shipment data demonstrate strong national engagement and growing international reach. Most materials were distributed within England, followed by Scotland and Wales, with additional shipments to Denmark, the United States, Spain, and Sweden. Although demand remains predominantly domestic, these figures reflect increasing cross-border utilisation and collaborative impact. As demand grows for well-characterised parasite and snail strains, the SSR plays a strategic role in enabling ethical, high-impact research. Methodological refinements, including the use of inbred snail lines, improve infection success, reduce variability, and minimise vertebrate animal use. Overall, the SSR represents a key component of the global research infrastructure for schistosomiasis, strengthening collaboration and accelerating progress in parasite biology and disease control.