



**Pathoplexus**

# Annual report 2024-25

In August 2024, as a group of 24 scientists from 10 countries, we launched Pathoplexus to contribute to the rapid, transparent and equitable sharing of pathogen genomic data, with the aim of supporting scientists and public health workers worldwide while protecting the rights and ensuring recognition of the people who generated the data. Over the reporting period, we grew Pathoplexus in scale and functionality, expanding the platform to ten viruses and receiving over 9,000 directly submitted sequences. We are grateful to all data submitters, volunteers, developers, curators and partners who supported Pathoplexus, trusted us with their data and contributed to the platform's development. In this report, we summarize our main achievements, including the expansion of supported pathogens, growth in global data sharing, software improvements and community engagement.

**Pathoplexus**

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Switzerland

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## 2024

12 August

### Foundation

After a year of planning, Pathoplexus was founded with 24 members from 10 countries as a non-profit organization.

27 August

### Launch

Pathoplexus.org was launched with initially 4 pathogens: Ebolavirus Sudan, Ebolavirus Zaire, West Nile virus, and Crimean-Congo haemorrhagic fever virus.

27 November

### Received Swiss ORD prize 2024

Pathoplexus received the 2024 National Prize for Open Research Data from the Swiss Academies of Arts and Sciences (CHF 5,250) – recognizing our commitment to openness and community governance.

9 December

### Added mpox

Mpox was added as our first new pathogen following community feedback, responding to ongoing outbreaks.

## 2025

22 May

### Added RSV and HMPV

RSV and HMPV were added after a community request letter, expanding Pathoplexus to major respiratory viruses affecting infants and other vulnerable groups.

3 June

### Launched Linkouts

We added linkouts, allowing data from Pathoplexus to be directly analyzed with external tools, contributing to a deeper integration of Pathoplexus in the wider ecosystem.

27 August

### Added Measles Virus

On our first anniversary, we added measles virus following strong community support and an Executive Board resolution, to support real-time genomic tracking amid increased outbreak risk.

20 November

### Welcomed 8 new members

We expanded the association by welcoming eight new members from across Africa, Asia, and Europe at our General Assembly.

28 November

### Added Marburg Virus

Marburgvirus was added in light of a recent outbreak in Ethiopia and prior community interest.

## Foundation

Pathoplexus was founded with 24 members<sup>1</sup> from 10 countries on 12 August 2024, following a year of preparation during which the underlying software was developed and governance rules and organizational structures were established. The initiative grew out of discussions and collaborative work within the wider international public health genomics community, with strong links to PHA4GE and its network of researchers and public health practitioners. This international foundation was essential to ensure that Pathoplexus was not only built as a technical platform but also as a community-governed organization guided by principles of openness, transparency and equity.

## Expanded our supported pathogens

Since Pathoplexus launched on 27 August 2024 with four initial pathogens (Ebola virus Sudan, Ebola virus Zaire, West Nile virus, and Crimean-Congo hemorrhagic fever virus (CCHF)), we have expanded the supported pathogens in a community-driven way:

- Mpox (added on 9 December 2024) has caused continued outbreaks, in the Democratic Republic of the Congo and countries worldwide and has been

designated as a Public Health Emergency of International Concern by the WHO.

- RSV (added on 22 May 2025) causes an estimated 3.6 million RSV-associated hospitalizations and approximately 100 000 RSV-attributable deaths in children under 5 years of age worldwide.
- HMPV (added on 22 May 2025) causes acute respiratory infections, particularly affecting young children, older adults and immunocompromised people.
- Measles virus (added on 27 August 2025) surged dramatically in 2025 while global travel and declining vaccination rates in some regions are increasing the risk of further outbreaks worldwide, making real-time genomic tracking vital in North America.
- Marburg virus (added on 28 November 2025) causes Marburg virus disease with a case fatality rate of 24% to 88% and is ranked as a Category A Priority Pathogen by the NIH. Due to the recent outbreak in Ethiopia, the Executive Board decided to prioritize the addition of the virus.

## Enabled rapid, global sharing

During the reporting period, Pathoplexus received direct submissions from 48 countries. The following table shows the number of submitted sequences (excluding revocations) per continent and the countries

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### <sup>1</sup> Founding members in alphabetical order:

Alexander Taepper, Allison Black, Anderson Brito, Anja Bedeker, Anna Parker, Artem Babaian, Chaoran Chen, Cornelius Roemer, Emily Smith, Emma Griffiths, Emma Hodcroft, Finlay Maguire, Franziska Bächler,

George Githinji, Gültekin Ünal, Jamie Southgate, Michael Bridger, Nawaal Weitz, Peter van Heusden, Richard Neher, Tanja Stadler, Theo Sanderson, Tommy Lam, Tracey Calvert-Joshua

with the most submissions within each continent.

Continent / country	Submissions
<b>Africa</b>	<b>2917</b>
- Democratic Republic of the Congo	2084
- Sierra Leone	370
- Cote d'Ivoire	152
<b>Europe</b>	<b>2041</b>
- Spain	1597
- Ireland	229
- Switzerland	131
<b>North America</b>	<b>1919</b>
- USA	1902
- Haiti	11
- Canada	6
<b>Oceania</b>	<b>1848</b>
- Australia	1826
- Papua New Guinea	22
<b>Asia</b>	<b>285</b>
- Philippines	128
- Mongolia	49
- Nepal	21
<b>South America</b>	<b>223</b>
- Argentina	223
<b>Total</b>	<b>9233</b>

We received more mpox sequences in 2025 than any other database, and large RSV datasets from international collaborations. The following table presents the number of submitted sequences per pathogen.

Pathogen	Submissions
CCHF	0
Ebola Sudan	1
Ebola Zaire	69
HMPV	0
Marburg Virus	0
Measles Virus	2
Mpox Virus	2765
RSV-A	2579
RSV-B	2848
West Nile Virus	969
<b>Total</b>	<b>9233</b>

## Showed the importance of protected sequence sharing

The availability of Restricted-Use Terms for protected sequence sharing has proven to be an important and effective mechanism for balancing rapid public health use with the protection of contributors' publication rights. The Restricted-Use model enables sequences to be accessed immediately for outbreak monitoring, analysis, and response, while limiting use in publications for a defined period. This approach saw growing uptake from partners in Africa and South America, supporting earlier data sharing from regions that are often underrepresented in global genomic surveillance.

Data use term	Submissions
Submitted as Open	6381
Submitted as Restricted-Use	
- Transitioned to Open by 31 December 2025	1021
- Remained Restricted-Use by 31 December 2025	1831

## Introduced major software improvements

Pathoplexus saw steady technical improvements that enhanced functionality, usability and performance, incorporating feedback from various users. These enhancements were made possible through the ongoing development of the open-source software Loculus, which underpins the Pathoplexus platform and is developed collaboratively by numerous research groups. Key improvements include:

- Metadata may now be uploaded as an Excel file. In combination with a new feature to map column names directly on the web interface, this simplifies the upload process, reducing the efforts in preparing a submission.
- Integrated “linkout” tools allow users to send selected sequences directly to external tools for downstream analysis and visualization.
- It’s now possible to add GISAID accessions to sequences uploaded to Pathoplexus to aid de-duplication efforts. (This is only available on organisms supported by GISAID.) Similarly, for measles sequences, it is possible to add the MeaNS2 ID.
- Bulk selection made easier: Users can now quickly select multiple sequences on the search page by clicking and dragging the mouse over the checkboxes – no need to click each one individually.
- Links to sequences at any INSDC database: Pathoplexus now offers a dropdown menu on the links to INSDC accessions, allowing users to view sequences in their preferred INSDC partner database – whether that’s GenBank, ENA, or DDBJ – making it easier to work with the platform they’re most familiar with.
- Find a sequence faster by using the new expanding search icon at the top of the front page – just paste in a Pathoplexus accession and go straight there.

A list of the latest changes to the software that powers Pathoplexus can be found in the Loculus repository<sup>2</sup>.

## Engaged widely

The developers and members of Pathoplexus have been in active exchange with the community, attending international conferences and organizing meetings including:

- Monthly Zoom meetings as part of the Working Group for Data Repositories (WG6) of the Public Health Alliance for Genomic Epidemiology (PHA4GE)
- Attendance of the WHO IPSN Global Partners Forum 2024
- Attendance of the PHA4GE Conference & WHO IPSN Global Partners Forum 2025 including the organization of a workshop
- Organization of two webinars in January and February 2025
- Other attended events are ESVC 2024, ASM NGS 2024, VGEB 2024, ECDC’s “Autumn 2024 Modelling Perspectives”, ENA Facilities Day 2024 and 2025, Dynamics & Evolution of Human Viruses 2025, ABPHM 2025, Swiss Pathogen Surveillance Platform (SPSP) annual meeting 2025, d/acc Berlin 2025, meeting at the Swiss Sarcoma Society, Micro Binfile Podcast, BC2 2025, IMMEM 2025, and CERI Summer Scientific Seminar at Stellenbosch University.

Pathoplexus has also been accepted as an institutional member of the International

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<sup>2</sup> <https://github.com/loculus-project/loculus>

Pathogen Surveillance Network (IPSN), convened by the WHO.

## Received recognition

Pathoplexus has been featured in several science news medias including Lancet Microbe<sup>3</sup>, Science<sup>4</sup>, and Nature<sup>5</sup>.

Pathoplexus received the 2024 Swiss National Open Research Data Prize by the Swiss Academies of Arts and Sciences for our commitment to openness and community governance, awarded with a prize money of CHF 5250.

Further, Pathoplexus received a small grant from “ETH4D Research Challenge” as a partnership between ETH Zurich, Pathoplexus, and Stephen Kanyerezi (Central Public Health Laboratories (CPHL)) in Uganda. The aim of ETH4D is to aid collaborations between ETH research groups, non-academic partners, and partners from low- and lower-middle income countries.

## Executive Board summary

During 2024-2025, the Executive Board established the core governance and operational structures needed for Pathoplexus to function as a non-profit organization. This included authorizing the platform launch, appointing members to the

Scientific Advisory Board, setting up financial infrastructure and defining processes for donation collection and expenses. A major focus of the Executive Board was guiding the platform’s expansion by selecting pathogens for inclusion based on community input and public health priorities and by defining procedures for the addition of new pathogens.

A full list of minutes and resolutions is available on the Pathoplexus website<sup>6</sup>.

## Scientific Advisory Board summary

The Scientific Advisory Board advised on strategic questions around funding, data submission, pathogen selection, and outreach. Discussions focused on identifying suitable funding opportunities, increasing awareness of Pathoplexus and its unique features and strengthening engagement with potential data submitters. The SAB also provided input on future pathogen expansion and emphasized the importance of proactive community engagement and rapid sharing during public health emergencies.

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<sup>3</sup>

[https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247\(24\)00263-5/fulltext](https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(24)00263-5/fulltext)

<sup>4</sup> <https://www.science.org/content/article/new-scientist-run-virus-database-vows-be-transparently-run-and-simple-use>

<sup>5</sup> <https://www.nature.com/articles/d41586-024-02864-x>

<sup>6</sup> <https://pathoplexus.org/about/governance/minutes>

# Financial statement 2024-25

## Introduction

Pathoplexus is a non-profit association established under Art. 60 et seq. of the Swiss Civil Code and legally based in Basel-Stadt, Switzerland. The association is recognized as tax-exempt by the authorities of Basel-Stadt. Its purpose is to enable the rapid and equitable sharing of viral pathogen genomic data for public health and researchers by operating an open-source database.

Since the foundation in August 2024, Pathoplexus has operated primarily through volunteer and in-kind contributions, including the work of developers and curators from various institutions and countries, as well as donated computing infrastructure. The following table presents the balance sheet and the statement of incomes and expenses followed by explanatory notes. This report covers the period from the association's foundation in August 2024 through 31 December 2025.

## Assets, incomes and expenses

<b>Assets</b>	<b>CHF</b>
Bank	9126.56
Cryptocurrencies	31.50
<b>Total</b>	<b>9158.06</b>

<b>Income</b>	<b>CHF</b>
Donations	5357.05
Other income	5250.00
Currency gains	1.53
<b>Total</b>	<b>10608.58</b>

<b>Expenses</b>	<b>CHF</b>
Expenses for received services	873.34
Travel costs	196.90
Advertisement- and marketing expenses	92.70
Other expenses	285.16
Cryptocurrency losses	2.42
<b>Total</b>	<b>1450.52</b>

## Explanatory notes

### Assets

The association's assets consist primarily of cash stored in a bank account. A minor portion of the assets is held in cryptocurrencies (Bitcoin and Ethereum), which were received as donations.

### Income

Income is derived approximately equally from donations made by four donors and from the receipt of the National Open Research Data (ORD) Prize 2024, amounting to CHF 5250, awarded by the Swiss Academies of Arts and Sciences.

### Expenses

Expenses are mostly attributable to received services and include expenditures for the domain name, the email service provider, uptime monitoring, and Crossref services for DOI registration. Travel costs relate to the support of contributors attending an international conference. Advertising expenses consist of the purchase of stickers. Other expenses comprise bank account fees and charges for postal mail forwarding services.

Pathoplexus does not have expenses for software development at the moment. It uses the open-source software Loculus whose ongoing development is supported through academic grants awarded to individual research groups.

The expenses do not include the costs of operating the servers. Computing resources were kindly provided by Pathoplexus member Artem Babaian via the University of Toronto Cloud Research Lab at The Donnelly, powered by AWS.

### Closing statement

The association is governed and operated by volunteers which includes the Executive Board and the Treasurer who prepared the report and the Auditors who reviewed the report. No professional accountants or

professional auditors have been engaged. The auditors' report is attached below.

We submit to the General Assembly on 10 June 2026 the motion to approve the annual financial statements.

Date: **02 June 2026**

Signatures:

**[Signed]**

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Emma Hodcroft, President

**[Signed]**

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Chaoran Chen, Treasurer

**Internal Audit Report**  
**Pathoplexus Non-Profit Association**  
**Financial Year 2024–2025**  
(Period: August 2024 – 31 December 2025)

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## Scope

We have reviewed the financial statements of Pathoplexus, including assets, income, expenses, and explanatory notes. The review included verification of bank balances, cryptocurrency holdings, supporting documentation, and arithmetic accuracy.

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## Financial Summary

**Total income:** CHF 10,608.58  
**Total expenses:** CHF 1,450.52  
**Surplus:** CHF 9,158.06

**Total assets as of 31 December 2025:** CHF 9,158.06  
(Bank: CHF 9,126.56; Cryptocurrencies: CHF 31.50)

The surplus corresponds to the reported year-end assets.

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## Conclusion

We confirm that we have received satisfactory explanations and supporting documentation for all matters raised. The journal entries, liability settlements, expense allocations, exchange rate differences, and year-end valuation adjustments have been reviewed and reconciled based on the information provided.

Based on the documentation and clarifications received to date, we are currently satisfied with the financial treatment and reporting of the items reviewed. We recommend that the General Assembly approve the financial statements for the 2024–2025 period.

Date: 03 March 2026

Internal Auditors:

Nawaal Weitz

**[Signed]**

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Michael Bridger

**[Signed]**

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