



# EpiFlu™ Database v1.1

www.gisaid.org

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## BACKGROUND

The Global Initiative on Sharing All Influenza Data (GISAID) provides a sharing mechanism for its publicly accessible EpiFlu™ database that incentivizes the rapid exchange of influenza virus data, by providing open-access to researchers and the development of medical interventions in a transparent manner, while protecting inherent rights of data submitters.

GISAID fosters benefit sharing and collaboration between submitters and users of data. Scientists' reticence to share data prior to publication via public-domain archives e.g. GenBank, where use of data takes place anonymously and void of any enforceable conditions to safeguard contributors' rights, prompted the creation of GISAID in 2008.

## OVERVIEW

The EpiFlu™ database application, developed by the Max-Planck-Institute for Informatics, enables the analysis of the world's most complete collection of the latest seasonal to new animal influenza viruses. The application is based on a proprietary software code and Oracle software. Extensive metadata are also collected for most isolates. EpiFlu™ also provides features for searching, filtering specific datasets for download and upload functionality.

All users of EpiFlu™ have agreed to positively identify themselves. While access is free of charge, all users also agreed that they will not attach any restrictions on the data, but will acknowledge both the originator of the specimen and the submitter of the data, and seek to collaborate with the Originating Laboratory.



Figure 1. The browser menu

## FEATURES IN DETAIL

- Contains influenza sequences and associated meta data with each isolate
- Genetic, clinical, epidemiological & geographical data for human isolates plus species specific data associated with non-human isolates
- Batch and single upload functions
- Ability of submitter to edit data submitted to the platform
- Each isolate accompanied by an audit trail with a history of edits
- Submitted data available for view to other users immediately
- Download facility of meta data associated with isolates in an Excel format
- Sequence download in FASTA format with user defined headers
- BLAST, alignment tool, FluSurver, nextflu phylogenetic trees (Figure 3)

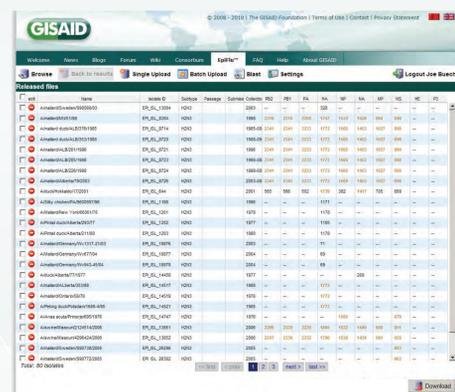


Figure 2. The search results page

## Browse Functions

- Can choose to browse all isolates in the database, user submitted isolates, or isolates not available on other databases (Figure 1)
- Can browse using one or more filters for:
  - Type, subtype, isolate name, genes, species, region, country of origin
  - Lineage swl or seasonal for H1N1, Yamagata or Victoria for Type B influenza viruses
  - Isolate Originating laboratory
  - Isolate sequence Submitting laboratory
  - Isolate specimen date
  - Isolate submission date
  - Can define fields to be displayed

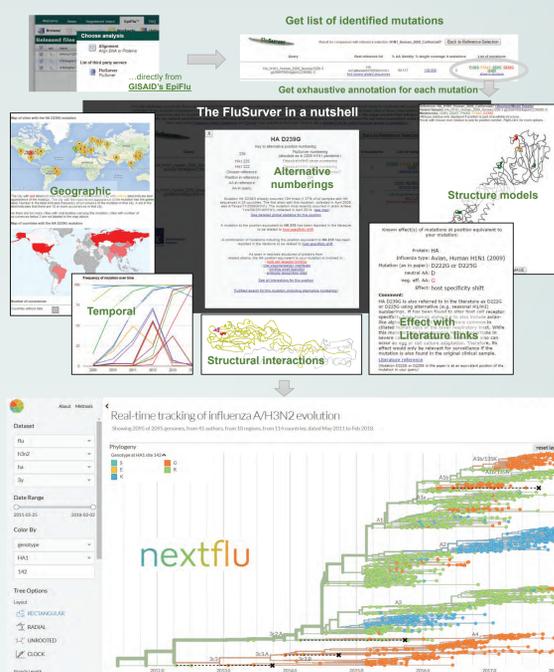


Figure 3. FluSurver mutation analysis connected to nextflu phylogenetic trees

## Upload Functions

- Can upload data via single upload function or batch upload sheet (Figure 4) for multiple isolates
- Metadata only needs to be entered once for each isolate
- Once isolates uploaded, extra gene sequences can be added via the edit function
- For isolates added via the batch upload sheet multiple extra gene sequences can be added by reusing the initial batch upload sheet
- Batch upload occurs in real time, with an immediate response
- Error messages are displayed for isolates & sequences not uploaded
- Duplicate sequences & isolates are flagged and not added
- Successful uploads are flagged and isolate accession and segment accession numbers are added to the return batch upload sheet

Isolate ID	Segment	Isolate Name	Subtype	Lineage	Passage	History	Country	Province	sub_province	Location	Additional Info	Host	Host Additional Info	Seq ID (HA)	Seq ID (NA)
66761	HA	EPIC23047 / NA	EPIC23046	ANICTORIA/204/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Devonlin		Human	deceased	0954268	0954269
66762	HA	EPIC23048 / NA	EPIC23049	ANICTORIA/205/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Lansfield		Human	deceased	0954281	0954282
66763	HA	EPIC23051 / NA	EPIC23050	ANICTORIA/209/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Richmond		Human	deceased	0954284	0954285
66764	HA	EPIC23053 / NA	EPIC23052	ANICTORIA/204/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Frankston		Human	deceased	0954286	0954287
66765	HA	EPIC23055 / NA	EPIC23054	ANTASMANIA/204/2009	H1N1	swl	Clinical Specimen	Australia	Tasmania	Hobart		Human	deceased	0954285	0954286
66766	HA	EPIC23057 / NA	EPIC23056	ANICTORIA/205/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Ashfield		Human	deceased	0954287	0954288
66767	HA	EPIC23059 / NA	EPIC23058	APERITH/054/2009	H1N1	swl	MDOXX	Australia	Western Australia	Bussellton		Human	deceased	0954287	0954288
66768	HA	EPIC23061 / NA	EPIC23060	APERITH/056/2009	H1N1	swl	MDOXX	Australia	Western Australia	Ashfield		Human	deceased	0954288	0954289
66769	HA	EPIC23062 / NA	EPIC23061	APERITH/056/2009	H1N1	swl	Clinical Specimen	French Polynesia	Tahiti			Human	deceased	0954288	0954289
66770	HA	EPIC23044 / NA	EPIC23043	ANICTORIA/212/2009	H1N1	seasonal	E2	Australia	Victoria	Melbourne		Human		0954284	0954285
66771	HA	EPIC23064 / NA	EPIC23063	ANICTORIA/212/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954285	0954286
66772	HA	EPIC23066 / NA	EPIC23065	ANVELLINGTON/205/2009	H1N1	swl	ndck-ndck-sw3	New Zealand	North Island	Waikato		Human		0954511	0954512
66773	HA	EPIC23068 / NA	EPIC23067	ANWAKATO/118/2009	H1N1	swl	ndck-ndck-sw3	New Zealand	North Island	Waikato		Human		0954512	0954513
66774	HA	EPIC23070 / NA	EPIC23069	ANVELLINGTON/212/2009	H1N1	swl	ndck-ndck-sw3	New Zealand	South Island	Dunedin		Human		0954513	0954514
66775	HA	EPIC23072 / NA	EPIC23071	ASAMBA/40/2009	H1N1	swl	ndck-ndck-sw3	Sri Lanka				Human		0954514	0954515
66776	HA	EPIC23074 / NA	EPIC23073	ANICTORIA/204/2009	H1N1	swl	MDOXX	Australia	Victoria	Frankston		Human		0954515	0954516
66777	HA	EPIC23076 / NA	EPIC23075	ANICTORIA/212/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954516	0954517
66778	HA	EPIC23078 / NA	EPIC23077	ANICTORIA/212/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954517	0954518
66779	HA	EPIC23079		ANICTORIA/212/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954518	0954519
66780	HA	EPIC23081 / NA	EPIC23080	ANICTORIA/212/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954519	0954520
66781	HA	EPIC23083 / NA	EPIC23082	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954520	0954521
66782	HA	EPIC23085 / NA	EPIC23084	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954521	0954522
66783	HA	EPIC23087 / NA	EPIC23086	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954522	0954523
66784	HA	EPIC23089 / NA	EPIC23088	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954523	0954524
66785	HA	EPIC23091 / NA	EPIC23090	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954524	0954525
66786	HA	EPIC23093 / NA	EPIC23092	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954525	0954526
66787	HA	EPIC23095 / NA	EPIC23094	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954526	0954527
66788	HA	EPIC23097 / NA	EPIC23096	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954527	0954528
66789	HA	EPIC23099 / NA	EPIC23098	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954528	0954529
66790	HA	EPIC23101 / NA	EPIC23100	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954529	0954530
66791	HA	EPIC23103 / NA	EPIC23102	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954530	0954531
66792	HA	EPIC23105 / NA	EPIC23104	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954531	0954532
66793	HA	EPIC23107 / NA	EPIC23106	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954532	0954533
66794	HA	EPIC23109 / NA	EPIC23108	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954533	0954534
66795	HA	EPIC23111 / NA	EPIC23110	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954534	0954535
66796	HA	EPIC23113 / NA	EPIC23112	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954535	0954536
66797	HA	EPIC23115 / NA	EPIC23114	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954536	0954537
66798	HA	EPIC23117 / NA	EPIC23116	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954537	0954538
66799	HA	EPIC23119 / NA	EPIC23118	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954538	0954539
66800	HA	EPIC23121 / NA	EPIC23120	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954539	0954540
66801	HA	EPIC23123 / NA	EPIC23122	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954540	0954541
66802	HA	EPIC23125 / NA	EPIC23124	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954541	0954542
66803	HA	EPIC23127 / NA	EPIC23126	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954542	0954543
66804	HA	EPIC23129 / NA	EPIC23128	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954543	0954544
66805	HA	EPIC23131 / NA	EPIC23130	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954544	0954545
66806	HA	EPIC23133 / NA	EPIC23132	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954545	0954546
66807	HA	EPIC23135 / NA	EPIC23134	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954546	0954547
66808	HA	EPIC23137 / NA	EPIC23136	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954547	0954548
66809	HA	EPIC23139 / NA	EPIC23138	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954548	0954549
66810	HA	EPIC23141 / NA	EPIC23140	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954549	0954550
66811	HA	EPIC23143 / NA	EPIC23142	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954550	0954551
66812	HA	EPIC23145 / NA	EPIC23144	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954551	0954552
66813	HA	EPIC23147 / NA	EPIC23146	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954552	0954553
66814	HA	EPIC23149 / NA	EPIC23148	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954553	0954554
66815	HA	EPIC23151 / NA	EPIC23150	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954554	0954555
66816	HA	EPIC23153 / NA	EPIC23152	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954555	0954556
66817	HA	EPIC23155 / NA	EPIC23154	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954556	0954557
66818	HA	EPIC23157 / NA	EPIC23156	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954557	0954558
66819	HA	EPIC23159 / NA	EPIC23158	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954558	0954559
66820	HA	EPIC23161 / NA	EPIC23160	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954559	0954560
66821	HA	EPIC23163 / NA	EPIC23162	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954560	0954561
66822	HA	EPIC23165 / NA	EPIC23164	ANICTORIA/213/2009	H1N1	swl	Clinical Specimen	Australia	Victoria	Melbourne		Human		0954561	0954562
66823	HA	EPIC23167 / NA	EPIC23166	ANICTORIA/213/200											