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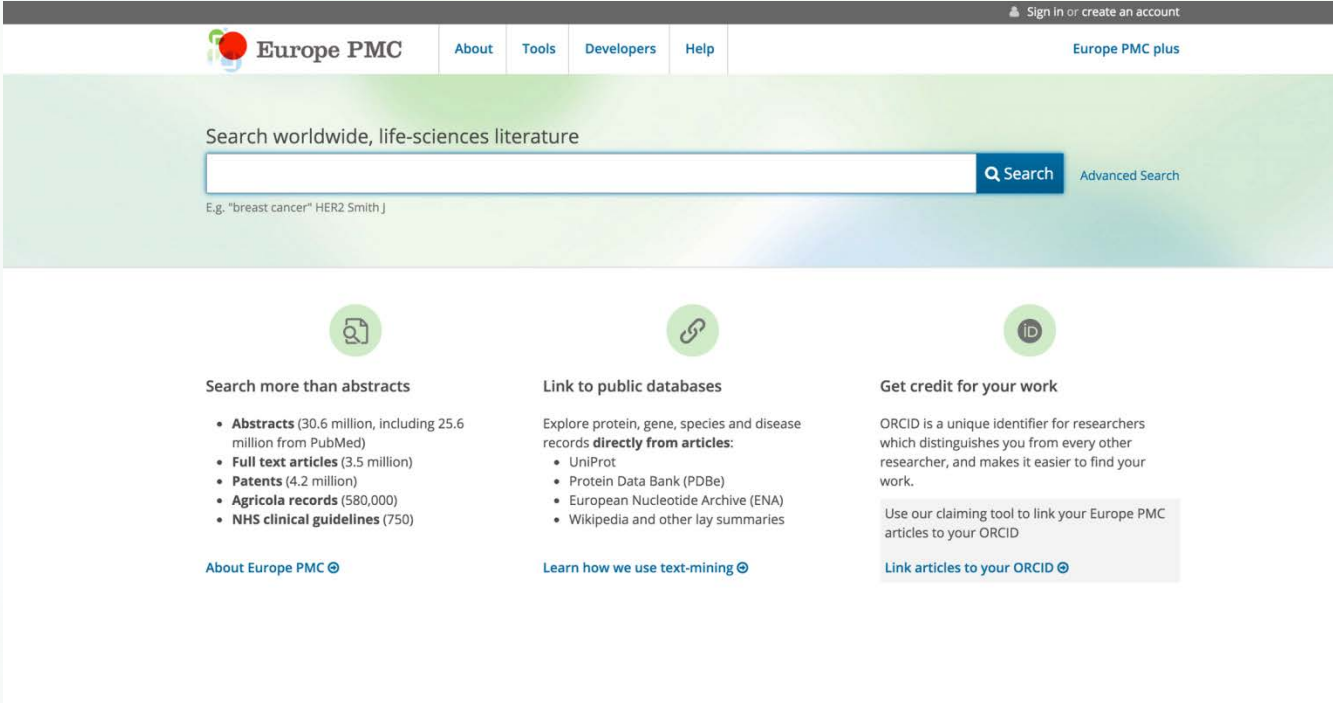
Audrey Hamelers and Frances Rogers

Helmholtz Open Science Webinars on Research Data
Webinar 32 – 9 /15 February 2016



What is Europe PMC?

A free repository of global life sciences literature and a partner in
PMC international



The screenshot shows the Europe PMC website. At the top, there is a navigation bar with the Europe PMC logo, links for 'About', 'Tools', 'Developers', and 'Help', and a 'Sign in or create an account' link. Below the navigation bar is a large search area with the text 'Search worldwide, life-sciences literature'. There is a search input field, a 'Search' button, and a link to 'Advanced Search'. Below the search area, there are three main sections: 'Search more than abstracts', 'Link to public databases', and 'Get credit for your work'. Each section has a list of items and a link to learn more.

Search worldwide, life-sciences literature

E.g. "breast cancer" HER2 Smith J

Search more than abstracts

- **Abstracts** (30.6 million, including 25.6 million from PubMed)
- **Full text articles** (3.5 million)
- **Patents** (4.2 million)
- **Agricola records** (580,000)
- **NHS clinical guidelines** (750)

[About Europe PMC](#)

Link to public databases

Explore protein, gene, species and disease records **directly from articles**:

- UniProt
- Protein Data Bank (PDB)
- European Nucleotide Archive (ENA)
- Wikipedia and other lay summaries

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Europe PMC contains

- 3.6 million full text articles
- 30.7 million abstracts, 25.7 million from PubMed
- 4.2 million patent abstracts
- 580,000 Agricola records
- 757 National Health Service guidelines
- 55,000 grants
- 140,000 Chinese Biological Abstracts



Where is Europe PMC based?

European Molecular Biology Laboratory-European Bioinformatics Institute

- Maintains data archives for life sciences and is the ELIXIR hub
- Allows programmatic access to these databases



What does Europe PMC offer?

- Single search finds terms within abstracts and full text
- Use of text-mining to aggregate additional information within articles, such as database citations and highlighting instances of gene symbols, diseases, chemicals, organisms, Gene Ontology terms and accession numbers
- Reciprocal linking with databases
- ORCID integration to allow authors to claim articles
- All content available as XML
- Programmatic access to content via web services



Search worldwide, life-sciences literature

H1N1

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Advanced Search

E.g. "breast cancer" HER2 Smith J

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Vet Microbiol [2016, 183:85-91]
Cited: 0 times
- ☐ [Autophagy is involved in regulating the immune response of dendritic cells to influenza A \(H1N1\) pdm09 infection.](#)
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Zang F, Chen Y, Lin Z, Cai Z, Yu L, Xu F, Wang J, Zhu W, Lu H
Immunology [2016]
Cited: 0 times
- ☐ [Bayesian estimation of the dynamics of pandemic \(H1N1\) 2009 influenza transmission in Queensland: A space-time SIR-based model.](#)
(PMID:26799511)
Huang X, Clements AC, Williams G, Mengersen K, Tong S, Hu W
Environ Res [2016, 146:308-314]
Cited: 0 times
- ☐ [Influenza Vaccine Effectiveness Against 2009 Pandemic Influenza A\(H1N1\) Virus Differed by Vaccine Type During 2013-2014 in the United States.](#)
(PMID:26743842)
Gaglani M, Pruszyński J, Murthy K, Clipper L, Robertson A, Reis M, Chung JR, Piedra PA, Avadhanula V, Nowalk MP, Zimmerman RK, Jackson ML, Jackson LA, Petrie JG, Ohmit SE, Monto AS, McLean HQ, Belongia EA, Fry AM, Flannery B
J Infect Dis [2016]
Cited: 0 times
- ☐ [Social class based on occupation is associated with hospitalization for A\(H1N1\)pdm09 infection. Comparison between hospitalized and ambulatory cases.](#)
(PMID:26271901)
Pujol J, Godoy P, Soldevila N, Castilla J, González-Candelas F, Mayoral JM, Astray J, García S, Martín V, Tamames S, Delgado M, Domínguez A, CIBERESP Cases and Controls in Pandemic Influenza Working Group
Epidemiol Infect [2016, 144(4):732-740]
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E.g. "breast cancer" HER2 Smith J

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Cited: 506 times

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Nat Struct Mol Biol [2009, 16(3):265-273]

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Nature [2012, 486(7403):420-428]

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Emerg Infect Dis [2011, 17(10):1791-1798]

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Department of Cancer Immunology & AIDS, Dana-Farber Cancer Institute, Harvard Medical School, 44 Binney Street JFB 826, Boston, Massachusetts 02115, USA. jianhua_sui@dfci.harvard.edu

[Nature Structural & Molecular Biology](#) [2009, 16(3):265-273]

Type: Journal Article, Research Support, N.I.H., Extramural

DOI: 10.1038/nsmb.1566 

Abstract

Highlight Terms

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Influenza virus remains a serious health threat, owing to its ability to evade immune surveillance through rapid genetic drift and reassortment. Here we used a human non-immune antibody phage-display library and the H5 hemagglutinin ectodomain to select ten neutralizing antibodies (nAbs) that were effective against all group 1 influenza viruses tested, including H5N1 'bird flu' and the H1N1 'Spanish flu'. The crystal structure of one such nAb bound to H5 shows that it blocks infection by inserting its heavy chain into a conserved pocket in the stem region, thus preventing membrane fusion. Nine of the nAbs employ the germline gene VH1-69, and all seem to use the same neutralizing mechanism. Our data further suggest that this region is recalcitrant to neutralization escape and that nAb-based immunotherapy is a promising strategy for broad-spectrum protection against seasonal and pandemic influenza viruses.

Funding

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Abstract

Highlight Terms ?

✓ Gene Ontology(3) ✓ Diseases(3) ✓ Genes/Proteins(2) ✓ Species(5)

Influenza virus remains a serious health threat, owing to its ability to evade immune surveillance through rapid genetic drift and reassortment. Here we used a **human** non-immune **antibody** phage-display library and the H5 **hemagglutinin** ectodomain to select ten neutralizing **antibodies** (nAbs) that were effective against all group 1 influenza **viruses** tested, including **H5N1** 'bird flu' and the **H1N1** 'Spanish flu'. The crystal structure of one such nAb bound to H5 shows that it blocks **infection** by inserting its heavy chain into a conserved pocket in the stem region, thus preventing **membrane fusion**. Nine of the nAbs employ the germline gene **VH1**-69, and all seem to use the same neutralizing mechanism. Our data further suggest that this region is recalcitrant to neutralization escape and that nAb-based immunotherapy is a promising strategy for broad-spectrum protection against seasonal and pandemic **influenza viruses**.

Funding

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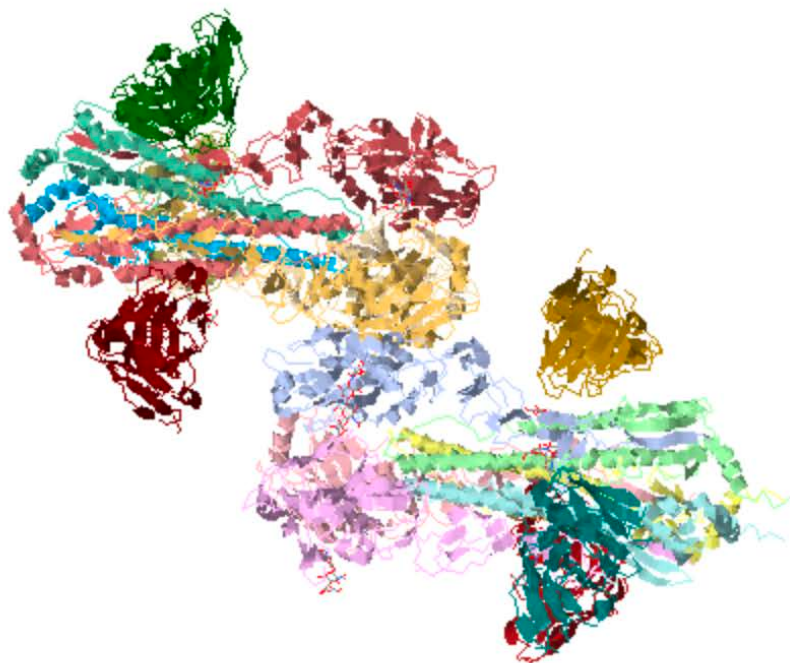
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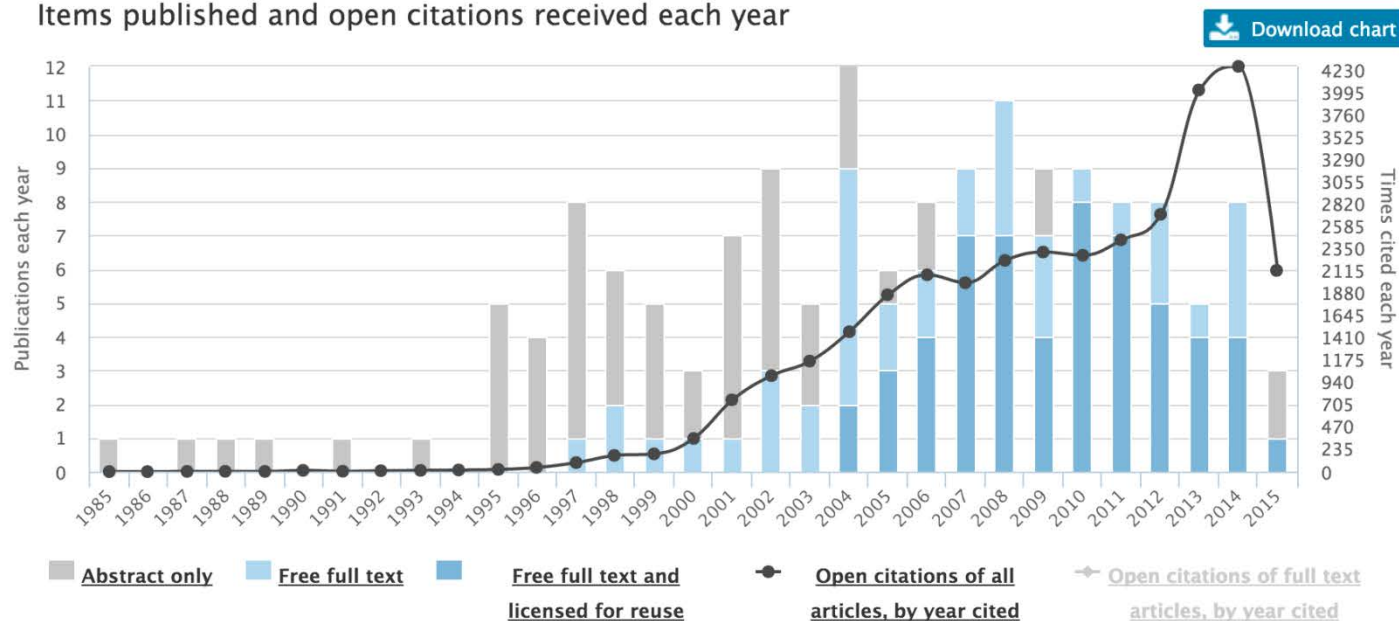
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Initial sequencing and analysis of the human genome.

Lander ES, Linton LM, Birren B, Nusbaum C, Zody MC, Baldwin J, Devon K, Dewar K, Doyle M, FitzHugh W, Funke R, Gage D, Harris K, Heaford A, Howland J, Kann L, Lehoczky J, LeVine R, McEwan P, McKernan K, ...

Nature [2001, 409(6822):860-921]

PMID:11237011

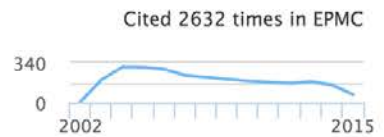


SCOP: a structural classification of proteins database for the investigation of sequences and structures.

Murzin AG, Brenner SE, Hubbard T, Chothia C

J Mol Biol [1995, 247(4):536-540]

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Initial sequencing and comparative analysis of the mouse genome.

Mouse Genome Sequencing Consortium, Waterston RH, Lindblad-Toh K, Birney E, Rogers J, Abril JF, Agarwal P, Agarwala R, Ainscough R, Alexandersson M, An P, Antonarakis SE, Attwood J, Baertsch R, Bailey J, Barlow K, Beck S, Berry E, Birren B, Bloom T, ...

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PMID:12466850



Identification and analysis of functional elements in 1% of the human genome by the ENCODE pilot project.

ENCODE Project Consortium, Birney E, Stamatoyannopoulos JA, Dutta A, Guigó R, Gingeras TR, Margulies EH, Weng Z, Snyder M, Dermitzakis ET, Thurman RE, Kuehn MS, Taylor CM, Neph S, Koch CM, Asthana S, Malhotra A, Adzhubei I, Greenbaum JA, Andrews RM, ...

Nature [2007, 447(7146):799-816]

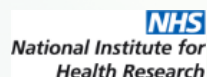
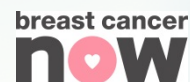
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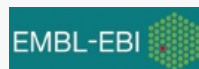
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