RESEARCH TO FIGHT HIV/AIDS

The challenge

Since AIDS was first recognised almost 35 years ago, tremendous advances have been made in research and medicine for HIV treatment, management and prevention, leading to considerable reductions in mortality and morbidity. Once known as a death sentence, HIV infection is now treatable and antiretroviral treatments provide a similar life expectancy to the uninfected population. Importantly, HIV/AIDS is no longer among the world’s top 10 causes of death\(^1\). Nevertheless, despite these advances, HIV/AIDS continues to be a dreadful disease requiring lifelong treatment with side effects. Globally, an estimated 36.9 million people are live with HIV and around 940,000 died of AIDS-related causes in 2017\(^2\). HIV/AIDS also heavily affects Europe, in particular the eastern region\(^3\).

One of the targets of Sustainable Development Goal (SDG) 3 “Ensure healthy lives and promote well-being for all at all ages” is to end the epidemics of AIDS by 2030. And in the framework of the EU response to the 2030 agenda, the European Commission has reinforced its commitment to work with the research community and the Member States to reach this target\(^4\).

The Commission has identified a number of scientific challenges where research and innovation are needed to develop new solutions and make the end of the epidemic a possibility:

- Continuous threat to develop resistance to antiretroviral drugs
- Lack of effective prophylactic vaccine and of a functional cure
- Complications in the course of the disease because of long-term treatment, co-infections and co-morbidities
- Need for patient empowerment and personalised treatment

What the EU does in research and innovation to meet the challenges

Under the previous Framework Programme for research and innovation (FP7), the EU has invested over €175 million in HIV/AIDS research, supporting research ranging from basic research to the development and testing of new or optimised treatments, new vaccine and microbicide candidates, and novel diagnostic tools. Successes from this portfolio include the development of a dozen new drug and vaccine candidates now in pre- or early clinical studies, a combined-drugs gel microbicide that successfully passed phase I trial, and the creation of a common virtual database with cohort data from over 350,000 HIV infected individuals\(^5\).

In Horizon 2020, the successor to FP7, the Commission is continuing its support to research for the development of novel or improved tools against HIV. By December 2018, over € 129 million has been committed (including EC contribution to EDCTP2

\(^1\) http://www.who.int/mediacentre/factsheets/fs310/en/
\(^2\) http://www.unaids.org/en/resources/fact-sheet
\(^3\) https://ecdc.europa.eu/en/hiv-infection-and-aids
\(^5\) http://www.eurocoord.net/
projects). Among the lines of research supported by H2020, two large projects EAVI2020⁶ and EHVA⁷ are generating predictive tools and developing and selecting the most promising vaccine candidates to be tested at an early stage of the process, thus enriching the global HIV vaccine pipeline. HIVACAR⁸ is evaluating in a proof-of-concept clinical trial a combination of immune-based therapies to achieve a functional cure for HIV; while eMERGE⁹ is developing and testing a mHealth platform to improve patient empowerment and healthcare utilisation.

Through these research actions, the Commission contributes to the global research agenda, but is also strengthening the involvement of all relevant stakeholders in the research process (e.g. patient community, social scientists), as well as influencing policy-making by making available high quality data for evidence-based recommendations.

Key initiatives

The European and Developing Countries Clinical Trials Partnership (EDCTP¹⁰) launched in 2003 is an important step towards the creation of a long-term partnership between the European Union and the Sub-Saharan African countries to fight the main poverty related diseases. Currently in its second programme, EDCTP is supported by 14 European countries, 16 African Countries and the European Commission and is supporting clinical trials and capacity building addressing HIV/AIDS, malaria, tuberculosis and other neglected diseases in Africa. During its first phase (2003-2013), EDCTP awarded 54 projects on HIV/AIDS research with a total EC contribution of € 66.4 million. The second programme EDCTP2 (2014-2024) has increased funding to € 1.3 billion. Among the different projects funded in EDCTP2, GREAT will evaluate a new vaccine that triggers the body to produce specialised immune cells called T-cells. This candidate vaccine will be trialled at four sites in Kenya, Uganda and Zambia. Another project, PreEPVacc, will evaluate two HIV vaccines in combination with pre-exposure prophylaxis. The two prime-boost immunisation strategies will be tested in Uganda, Tanzania, South Africa and Mozambique; and WISH, building on previous studies, aims to improve HIV prevention and sexual and reproductive health care in women at high risk of HIV in Rwanda.

InnovFin Infectious Diseases, a new finance facility, launched jointly by the EC and European Investment Bank in 2015, gives loans to companies with new drugs, vaccines, medical and diagnostic devices, and research infrastructures that combat infectious diseases. This helps makes sure these innovations are available faster to the people that need them¹¹.

A European One Health Action Plan against Antimicrobial Resistance (AMR)¹². In June 2017 the European Commission adopted the new Action Plan to support the EU and its member States in delivering innovative, effective and sustainable responses to antimicrobial resistance. Built on three main pillars - i) making the EU a best practice region, ii) Boosting research, development and innovation, and iii) Shaping the global agenda – it provides a framework for continued action to reduce the emergence and spread of AMR. During its implementation, special attention will be given to several pathogens including HIV.

Additional information

Health research:  www.ec.europa.eu/research/health
H2020 Participant Portal:  http://ec.europa.eu/research/participants/portal
Contact:  European Commission, DG Research and Innovation, Health Directorate, Fighting Infectious Diseases and Advancing Public Health.
Email:  RTD-INFECTIOUS-DISEASES-PUBLIC-HEALTH@ec.europa.eu

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⁶ http://www.eavi2020.eu/
⁷ http://www.ehv-a.eu/
⁸ http://www.hivacar.org/
⁹ https://www.emergeproject.eu/
¹⁰ http://www.edctp.org/
¹² https://ec.europa.eu/health/amr/action_eu_en