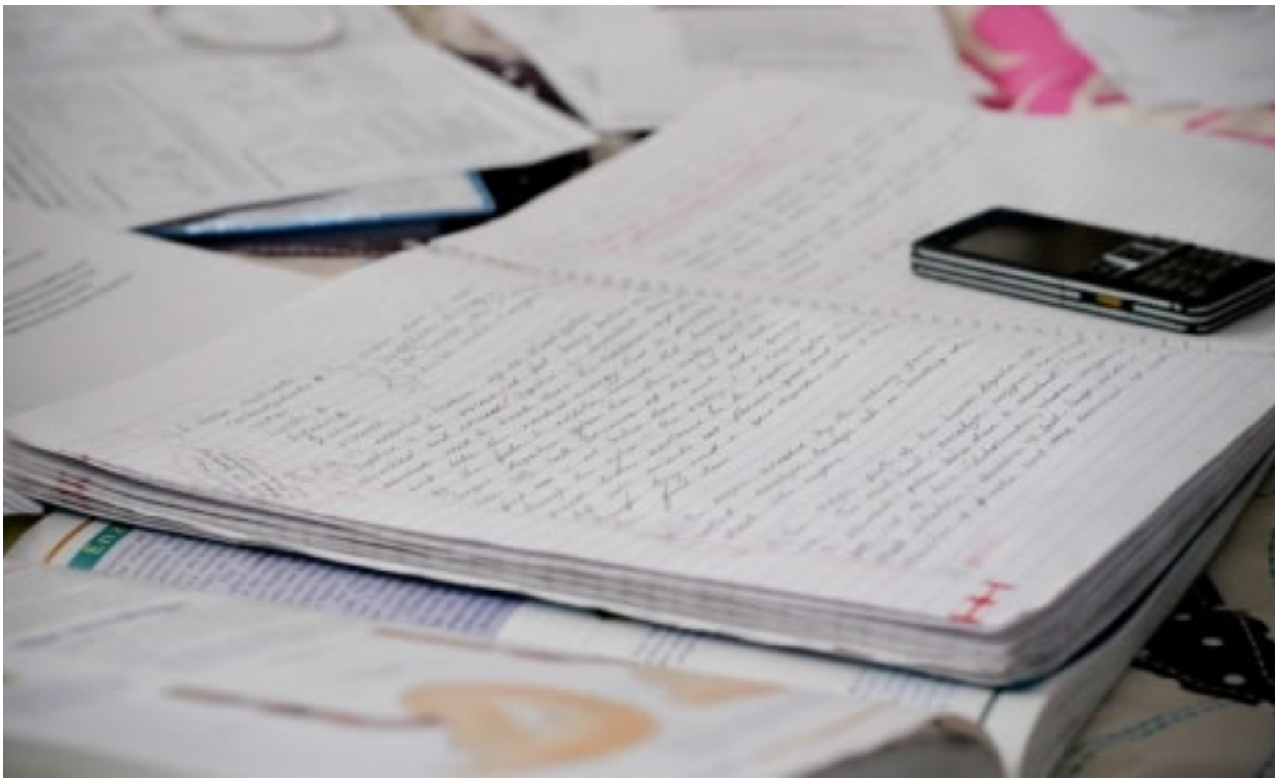
Research on leukaemia

02/01/2019 - 10:20

- 

The only way of curing leukaemia is through cooperative research. With the most exact knowledge on how leukaemia originates and develop we reach more precise treatments.

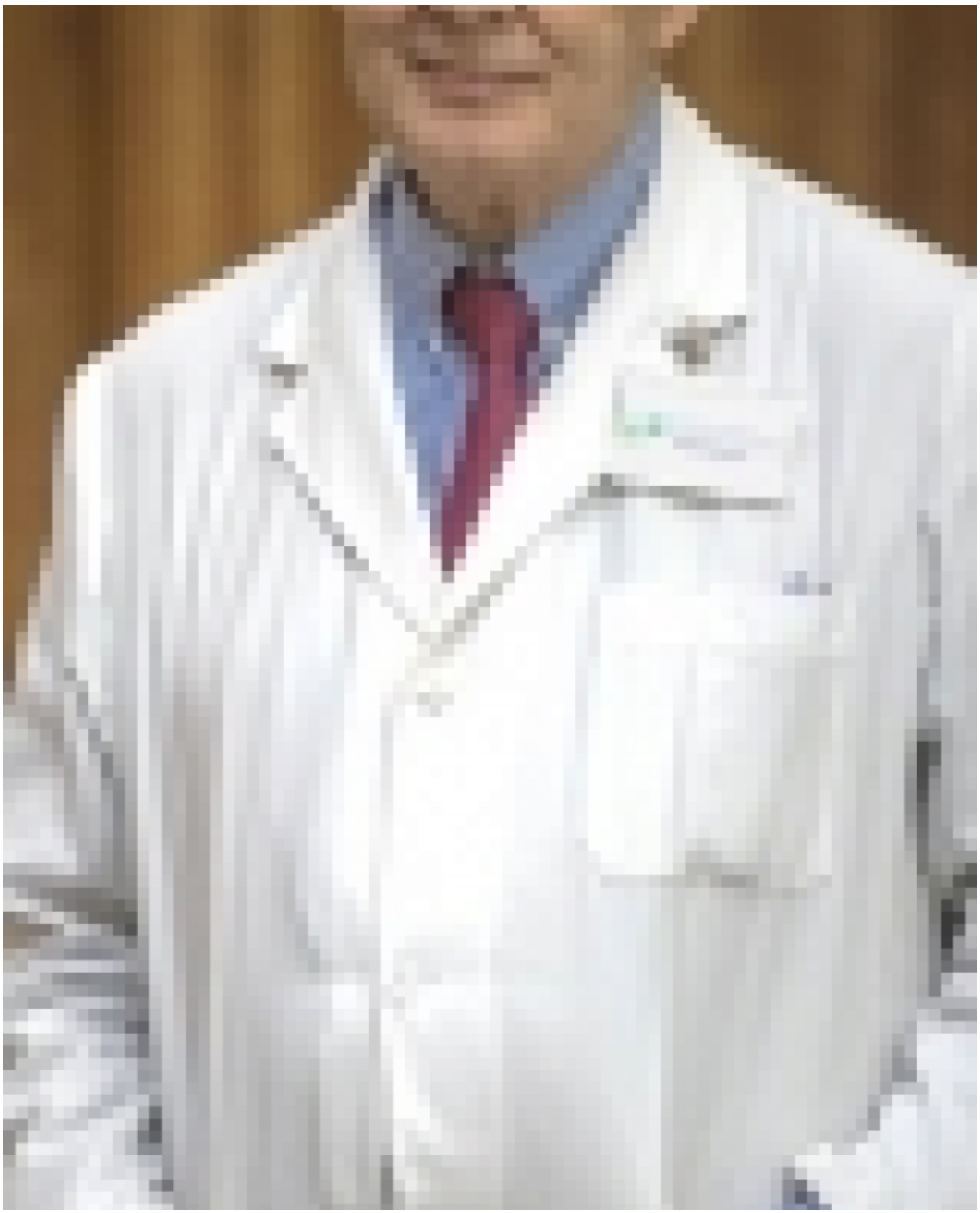
Evarist Feliu Frasnedo

Submitted by F Pere Tarrés on Fri, 02/01/2019 - 10:14

Description:

Vice president of the Fundación Internacional Josep Carreras for the fight against Leukemia, president of the Delegate Commission of the Research Institute against Leukemia and Professor Emeritus of the Universitat Autònoma de Barcelona.

Vertical photo:



Square photo:

Horizontal photo:

- Printer-friendly version
- PDF version

Malignant blood diseases in general, and leukaemia in particular, are one of the most challenging forms of cancer to do research and treat in humans. Indeed, they have represented and continue to represent a form of curable cancer. It is therefore not surprising that the two forms of cancer that we are able to cure for a large proportion of patients are childhood Acute Lymphoblastic Leukaemia (ALL) and Hodgkin lymphoma.

The only way of curing leukaemia is through cooperative research. With the most exact knowledge on how leukaemia originates and develop we reach treatments that are more and more precise, aimed as specifically as possible to solve or avoid the damage caused by the growth and proliferation of malignant cells, and also aimed at preserving healthy cells and tissue. This is the ultimate goal of what is known as translational research.

There is no doubt that the outcomes of this research will play a decisive role in curing leukaemia. The most paradigmatic example is perhaps the use of oncogene ABL tyrosin-kinase inhibitor to treat chronic myeloid leukaemia, which has substantially increased the survival rate in patients, with a life expectancy that could be comparable to that of the normal population. To make these drugs possible it is essential to count of the essential help of other disciplines of biology (pharmacology, genetics and molecule biology, among others), and even of other basic disciplines such as physics, chemistry, mathematics and bioinformatics, as some of the most important.

Fields of research may be split in two:

a) Clinical research: this form of research looks at aspects such as the epidemiology, geographic distribution and incidence of leukaemia; possible determining genetic, environmental, social and other risk factors. From a clinical perspective, what is studied the most is infection, which continues to be the main cause of death in patients; new procedures to diagnose and establish prognostic factors. Then, there are clinical trials conducted at Clinical Research Units to assess new drugs in collaboration with the pharmaceutical industry, with studies conducted in national and international cooperative groups. In Spain, the PETHEMA Foundation, a working group of the Spanish Society of Haematology and Haemotherapy (SEHH), is the one in charge of coordinating at a national level many of the clinical trials to diagnose and treat leukaemia.

b) Laboratory research: This type of research focuses on detecting the minimal residual disease using flow cytometry, cytogenetics and molecule biology. Cytometry, cytogenetic, FISH and comparative genomic hybridization techniques are also used to get a better diagnosis and prognosis of leukaemia. Genomic, epigenetic, proteomic, metabolomic and microRNA studies contribute to identifying the mechanisms of leukemogenesis and therapeutic targets that will lead to developing new and more precise anti-leukaemia agents.

Among the main breakthroughs it is worth mentioning: a) knowledge on the range of alterations and mutations in leukaemia cells to provide customized treatment; b) knowledge on haematopoiesis stem cells, since it is believed that leukaemia cells behave in the same way; c) genome sequencing; d) the discovery of new therapeutic targets; e) immunotherapy treatment using monoclonal antibodies or CARTs (chimeric antigen receptor T cells) and f) drugs that are activated through biological mechanisms exclusively on malignant cells, respecting normal cells.

The opportunities brought by research on leukaemia are evident. This is achieved by working with multi-disciplinary teams with experience in the different areas mentioned and with networking among clinical researchers and professionals from the translational (from lab to clinical research) and basic research. In this regard, it is worth mentioning the European LeukemiaNet, comprised of around 120 groups and 1,300 specialist doctors and researchers from 220 institutions. Its main task is to care for tens of thousands of patients in 44 countries around Europe.

It’s ultimate goal is to cure leukaemia; since it was implemented in 2002, the European LeukemiaNet has grown and brought together research in the field of leukaemia around Europe in all facets: registers, diagnostic, prognosis, treatment and guidelines.

Tags: cancer
leukaemia
Fundación Internacional Josep Carreras

Links of interest

- About us
- Contact
- Legal terms
- Cookies policy

Follow us

- Visit us on Twitter

- RSS

Source URL: https://nonprofit.xarxanet.org/opinion/research-leukaemia