

Only 5 percent of cancer research funds are spent on metastases, yet it kills 90 percent of all cancer patients

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On average, about five percent of total cancer research funding is spent on investigating metastases (the spread of cancer cells around the body) in Europe, yet metastatic disease is the direct or indirect cause of 90 percent of all cancer deaths, according to an editorial in the *European Journal of Cancer* (EJC).

The authors of the editorial, which introduces a special EJC issue on metastasis ("Stopping cancer in its tracks: metastasis as a therapeutic target"), highlight this discrepancy in funding and they believe that, although it is difficult to obtain accurate figures, the situation is probably similar in other countries such as the USA and Japan.

It has been known for some time that metastasis is the key problem in cancer and the main reason why people die from the disease. Until recently, the reasons why some people developed metastases and other did not had been unclear, but, as this special issue of the EJC shows, at last there are models and scientific hypotheses that have begun to unravel this process and the EJC reviews the state of the art in this respect. However, research into metastasis has not necessarily attracted the recognition it deserves from funding organisations.

Professor Jonathan Sleeman, one of the two guest editors of the EJC special issue and head of microvascular pathobiology research at the University of Heidelberg (Germany), said: "Metastasis is a process in

cancer that is very poorly understood; it kills patients and therefore we believe that it should be funded better. Yet at the European level and, indeed, worldwide, comparatively little emphasis is placed on tackling metastases and in providing appropriate levels of funding for research."

He continued: "Given the clinical importance of metastasis for cancer patients, the limited treatment options for metastatic disease and the open question of how metastasis works, we need to know how much research funding is being directed at the problem and what proportion of funding for cancer research ends up focused on metastases? I have found it hard to obtain reliable figures, but although there is considerable variation between European countries, I estimate that the average spent on metastasis research is around 5% of total cancer research funding. Given that metastasis is of central importance to the prognosis and outcome of cancer patients, we could argue that in many countries more funding should be directed toward metastasis research."

Metastasis is the process by which [cancer cells](#) split off from the original, primary tumour and travel to other parts of the body via the blood or lymph systems. This leads to the growth of secondary tumours in places such as the bones, brain, lungs and liver, and it is usually these that end up killing the patient.

"Metastatic disease, therefore, represents a major public health problem, affecting cancer patients and their families, as well as health care systems and the broader economy. Despite this, progress in developing treatments for metastatic disease remains slow," write Prof Sleeman and the second guest editor, Professor Patricia Steeg (chief of the Women's Cancers Section, Laboratory of Molecular Pharmacology at the National Cancer Institute, Bethesda, USA) in their editorial.

In addition to adequate funding, they call for:

- effective translational research for metastatic disease, which will take discoveries made in the laboratory quickly into new and better treatments for cancer patients;
- clinical trials to be designed so that they include information on metastases;
- clinicians and scientists to work more closely together to design clinical trials that assess the development of new [metastases](#).

"In summary, combating metastasis formation and growth is the key to successfully treating cancer," they conclude. "Traditional growth control approaches are inadequate and can even be detrimental in the long term: new therapies built upon a solid understanding of the process of metastatic disease are urgently required. In turn, this demands an increased pre-clinical knowledge base that capitalises on major conceptual advances made in recent years, as well as a rational approach to the design of clinical trials with the inclusion of metastasis as an end-point. Together these observations speak for the necessity of increasingly close interactions between basic and clinical scientists, as well as the enhanced levels of research funding required to alleviate this major clinical problem."

The EJC special issue on metastasis consists of a number of articles looking at the state of current knowledge about the disease and outlining promising areas of research. Prof Steeg said: "We hope that this special issue will highlight the fact that metastasis should be an important consideration during drug development. If more attention was paid to it, we could really improve treatments for cancer patients."

More information: "Cancer metastasis as a therapeutic target" by Jonathan Sleeman and Patricia S. Steeg. European Journal of Cancer. Volume 46, issue 7, pages 1177-1180 (May 2010).

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