

To face the cancer is to give ourselves the means to overcome it.

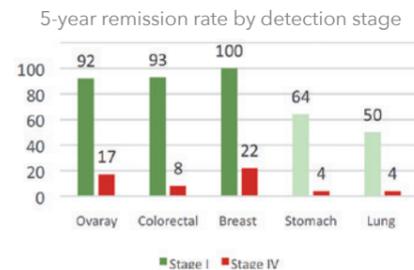
# hPG<sub>80</sub>

IS A BLOOD BIOMARKER THAT HELPS US FACE CANCER

## #1. THE VALUE OF DETECTING CANCER IN ITS EARLY STAGES

Detecting cancer in its early stages of development allows for intervention under the best possible conditions.

In the case of cancer detection/screening, the most important thing is that the sensitivity is optimal in the early stages of cancer in order to identify as many cancer patients as possible in these early stages.



This diagram gives the percentage of remissions from a cancer at 5 years according to the stage of the cancer at the time of its detection and therefore the start of its treatment.

In green, detection at stage 1 - in red detection at stage 4. To be effective, cancer detection must be done before the patient develops any symptoms.

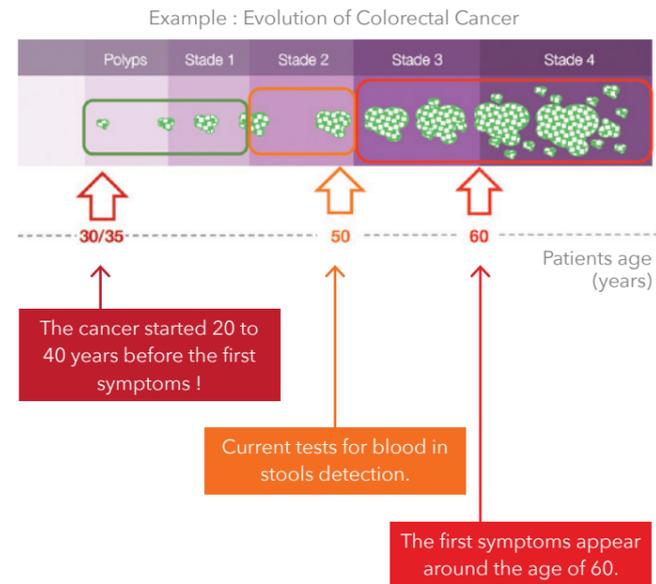
## #2. EVOLUTION OF A CANCER

If we take colorectal cancer as an example, the first symptoms will appear around the age of 60, and on average around the age of 70 for men and 73 for women.

However, this cancer started when you were only 30 to 35 years old! It will therefore have evolved without symptoms (without significant pain or bleeding) for 20 to 40 years.

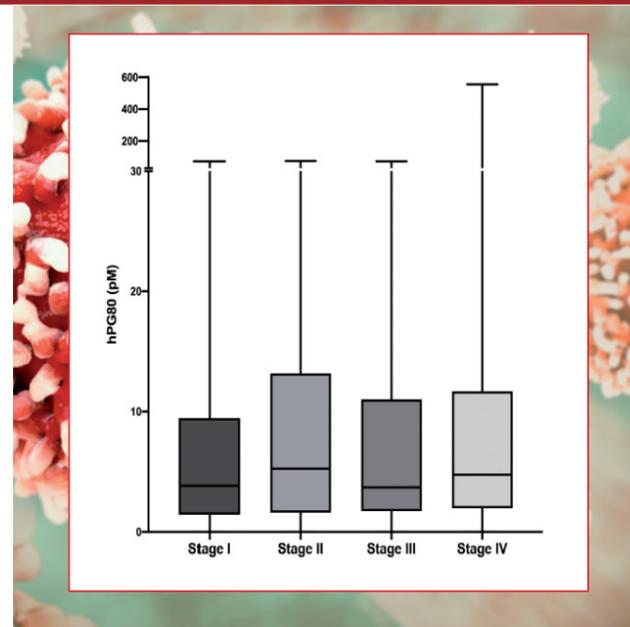
Detection/screening of cancer should be done as early as possible, even if the cancer detected will only be localized and therefore be operable after 10 to 15 years.

If you are monitored regularly and a cancer develops, on the day it is found, it will very likely still be at an early stage and therefore curable.



[www.progastrin-cancer-control.org](http://www.progastrin-cancer-control.org)

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There are few markers for cancer today but not for all cancers. Moreover, most of the current markers appear in the advanced stages of cancer. A good biomarker must also be detectable in the early stages of cancer.

hPG<sub>80</sub> is a very reliable biomarker that can help detect the early stages of cancer and is the first biomarker detectable in many cancers.

hPG<sub>80</sub> was detected and tested in all the 16 cancers studied\* to date (February 2020).

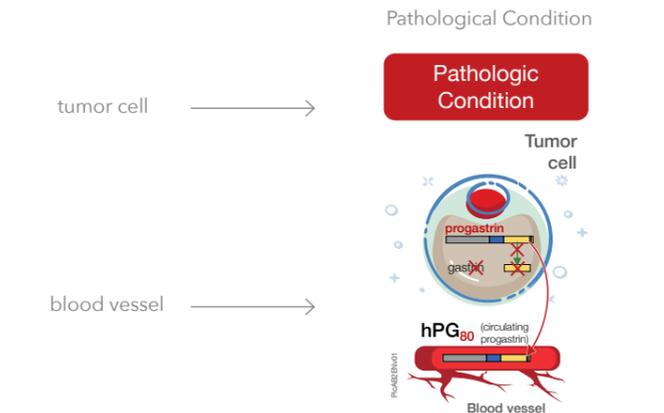
\*Cancers: breast, colorectal, esophagus, stomach, kidney, liver, lung (NSCL), melanoma of the skin, ovaries, pancreas, prostate, uterus (endometrium and cervix) - You et al, EBioMedicine, 2020

## #3. WHERE DOES THIS NEW BIOMARKER COME FROM?

In 2003, Dominique Joubert (Director of research at Inserm) worked with her team on this protein in its extracellular circulating form, which she later named as hPG<sub>80</sub>, to be differentiated from its intracellular form related to gastrin and not to cancer.

Contrary to the scientific dogma, she believes that cancer follows laws of nature and therefore should be possibly « reversed ». This protein, which must leave the cancer cell and re-interact with it to have its effects, seems to her the ideal candidate to « break » the vicious circle of cancer.

And indeed, she will demonstrate for the first time that a solid cancer is reversible (cancer cells differentiate, resume « normal » function and die a natural death).



This demonstration will give rise to a project of differentiation (reversion) therapy, hPG<sub>80</sub> detection and measure tests and a radioactive tracer project to improve the detection of tumors in their early stages.

- hPG<sub>80</sub> is an extracellular target,
- ▶ **detectable** (detection),
- ▶ **measurable** (therapy follow-up),
- ▶ **neutralizable** (differentiation therapy),
- ▶ it's also a potential specific marker of cancer for imaging.

## #4. HOW IS THE TEST PERFORMED?



This test is done, fasting, under medical prescription.

It's a simple blood draw taken at the hospital or at a certified laboratory for the test DxPG<sub>80</sub>.

The blood will be centrifuged to extract the plasma. Presence of hPG<sub>80</sub> in the plasma will be analyzed.

In order to guarantee the result quality, the analysis of your plasma sample is carried out exclusively in laboratories certified by the test manufacturer.

Your prescribing physician will receive a test result giving either a yes/no answer (detection test) or showing the level of hPG<sub>80</sub> measured in the sample (monitoring the efficacy of therapies).

**BLOOD BIOMARKER OF TUMOR AND CANCER STEM CELL ACTIVITY**

**hPG<sub>80</sub>**

*The medical revolution to be tamed*

## #5. IF YOU TEST POSITIVE FOR hPG<sub>80</sub>

**Don't panic. You're greatly increasing your chances of beating a possible cancer.**

Detecting hPG<sub>80</sub> before any symptoms show up is a real chance.

It is mainly the late detection of cancer that makes it a fatal morbidity.

One oncologist made the following comment to the scientists and physicians who were presenting the DxPG<sub>80</sub> test to him and the interest of detecting and measuring hPG<sub>80</sub>.

Finally, this is the test I've been waiting for.

If my patient is tested negative, that's good news. If he is tested positive, that's good news, because I have a great chance of saving his life if he does develop a cancer.

We need to rethink the way we fight cancer by facing head-on.

Because it's a scary condition, we are unwilling to know. However we will increase the recovery rate considerably through early detection of cancers.

There is, and always will be, the difficulty of locating an early tumor, but at least we know that there is a very good chance of locating it while it is still at an operable and therefore curable stage.

It can take up to 10 years from detection to localization of cancer and still be in the early stages.

## #6. CANCER: WHO IS YOUR PARTNER IN THIS FIGHT?

Researchers and manufacturers are doing an enormous amount of work to understand the laws of nature and seek extraordinary solutions in the fight against cancer. Without those solutions, there is no test, no therapy, no tool.

But scientists, whether they work in an academic research center or an industrial laboratory, can only offer technical solutions to **physicians**.

The technique, however beautiful it may be, is only a tool in the hands of a human being who is your physician; he is **your partner in the fight**.

Only your physician, within the limits of current scientific and medical knowledge and the available tools, is able to help you. A test is only one indicator among others that allows the physician to form an opinion on your health condition.

It is through an analysis of multiple evolutionary factors that your physician will try to understand your medical condition, at what stage you are at and if there is a pathology.

In case of cancer, it is frequent and recommended for a college of health professionals to make the diagnosis in order to minimize the risk of errors.

Medicine is a very complex and evolving science, which only your physician is mastering.

Maintaining a healthy lifestyle is a clear advantage to your health, but it is not enough; you may require, whenever necessary, to resort to medicine.

## #7. WHAT IS A TUMOR MARKER?

A tumor marker is an element (gene mutation, protein, blood) directly or indirectly related to cancer.

Its detection or measure will **help** the physician **make a diagnosis** or **evaluate therapy efficacy**.

The majority of tumor markers are elements already present in your body in absence of cancer (indirect link). Therefore, it often is their level (quantity) and not their only presence that will suggest a link with cancer.

The physician will use several «indicators» to make a diagnosis, tumor markers, imaging, artificial intelligence, in addition to what he or she knows about your family history, lifestyle, medical history, and lastly knowledge of the disease.

An example of an indirect marker: the blood in the stool (resulting from a lesion) is an indirect indicator of the possible presence of polyps or colorectal cancer. But the presence of this indicator does not automatically mean that you have a cancer (false positive) and its absence does not automatically mean that you do not have a cancer (false negative).

Other markers are linked to genetic mutations.

**hPG<sub>80</sub>** is a marker that appears to be specific for cancer and is detectable in the blood of 83% of cancer patients. Its detection or measurement will help your physician make a diagnosis.



## #8. NO TEST IS 100% RELIABLE

### False negative / False positive Sensitivity / Specificity

A test is an imperfect tool that gives an indication to the physician.

No test detects its marker at 100%.

The **false negative rate** is the percentage of patients with a disease who were negative to the test which detects that pathology.

The patient **has cancer, but** the test **does not detect** it.

### CAUTION

A test detects or measures a marker (e.g. blood in the stool)... not a cancer!

The **false positive rate** corresponds to the number of people who do not have a specific pathology and tested positive.

**Sensitivity** is the percentage of patients tested positive for a population of patients who has developed a specific pathology. It represents **true positives**.

**Specificity** is the percentage of people who have not developed the desired pathology and who are tested negative. It represents **true negatives**.

The **DxPG<sub>80</sub>** test detects its marker which is **hPG<sub>80</sub>**.

The **DxPG<sub>80</sub>** test detects **hPG<sub>80</sub>** in 83% of people with one of the 16 cancers tested to date (sensitivity).

## #9. DETECT A SUSCEPTIBILITY TO CANCER

At the current level of scientific knowledge, detecting the biomarker **hPG<sub>80</sub>** in blood is an indicator of susceptibility to developing cancer.

What does it mean to be at risk of developing cancer?

If you smoke, if there are cases of cancer in your close family, if you are exposed to carcinogenic products, if you have certain genetic mutations, you are susceptible to developing cancer.

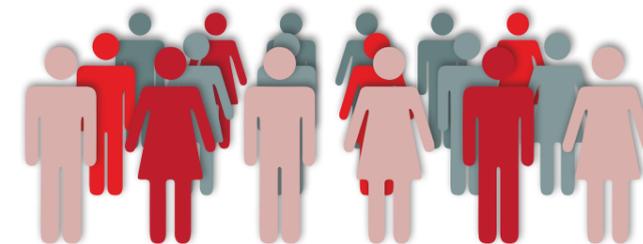
What's the point of knowing you're at risk of developing cancer?

Cancer is surgically curable if it is operated on in its early stages of development. Knowing that you have a susceptibility to developing the disease will allow your physician to follow you up more closely to identify a possible cancer in its early stages of development, when it is still curable.

Identifying a susceptibility to developing cancer should be seen as an opportunity. Your physician and you will greatly reduce the risk of a late detection of cancer.

### CAUTION

Today, existing tools for detecting a tumor at a very early stage have limited efficacy. The search for the presence of the **hPG<sub>80</sub>** marker, which is detectable in the early stages of cancer when you have no symptoms, makes it possible to partially overcome this technical limitation in the cancer early stages detection.



## #10. FOLLOW UP ON THE EFFICACY OF THERAPY

Your physician makes a diagnosis and will use the therapeutic tools at his/her disposal, when available, to prescribe therapy.

Once your physician has a tumor marker to monitor the efficacy of this therapy, this will allow him/her either to continue this therapy because it seems to give good results, or to stop this therapy because it does not give good results and to change it when he/she has a better therapeutic alternatives.



### CAUTION

In reported cancers, **hPG<sub>80</sub>** appears to be a marker for tumor activity. Majority of markers are tumor presence and/or tumor volume-related markers. **hPG<sub>80</sub>** appears to be particularly related to tumor stem cells, which are the «reactor» of the tumor. **hPG<sub>80</sub>** test therefore appears to give an indication of the activity and reactivity of these cells essential for tumorigenesis. **hPG<sub>80</sub>** complements classical tumor markers when they exist for the type of cancer concerned.

Your physician will use all the tools at his/her disposal to evaluate the efficacy of the therapy: imaging, tumor markers and clinical signs.

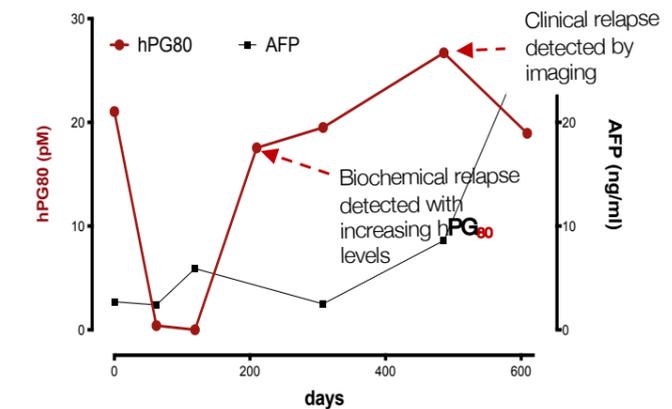
**hPG<sub>80</sub>** has been detected and measured in all 16 cancers studied to date, making it the first truly panoramic marker to help physicians monitor therapeutic efficacy.

## #11. EARLY DETECTION OF RELAPSE

When you have completed your treatment (surgery, chemotherapy, radiotherapy, immunotherapy, ...) and you no longer have any clinical signs, markers and imaging are negative, you are considered to be in remission (that you're not sick anymore).

Since cancer is a complex pathology that can possibly recur and since the tools available to your physician are limited, it is essential to have a close follow-up during the first two to five years depending on the type of cancer and its stage then have a regular follow-up throughout your life (as recommended for asymptomatic people detection).

Studies have shown the value of measuring **hPG<sub>80</sub>** while in remission to help identify possible relapse at an early stage.



In this specific case, the detection of **hPG<sub>80</sub>** helped identify relapse approximately 300 days before imaging and almost 400 days before the AFP marker normally used for this cancer.