

Reviewer of the 3D-CBS technology: Prof. Domenico Scannicchio

May 17, 2010

Dear Dr. Scannicchio, for your record I am sending you a copy of the questionnaire that you kindly answered in the way reported below during our conference call with Dr. Vincenzo Vigna on May 17, 2010 from 1:10 p.m. to 1:50 p.m. The same questionnaire was submitted to the participants at the SEMINARIO SPECIALISTICO on the 3D-CBS technology held in Pavia on September 30, 2009 at the Policlinic IRCCS when the President of the Medical Physics of Italy, Dr. Guido Pedroli attended with other colleagues expert in the field of medical imaging and particle physics.

On behalf of cancer patients and taxpayers, who all want clarification regarding the possibility of significantly reducing premature cancer death while also reducing costs through research, we would like you to let us know if you agree on a paradigm change in cancer research.

The reason we are making this request is because the current direction of cancer research costing \$220 billion/year in the U.S. and \$43 billion/year in Italy has not achieved a substantial reduction in cancer deaths: The death rate for cancer dropped only 5 percent during the past 50 years. In contrast, the death rate for heart disease dropped 64 percent in the same time period. See article in The New York Times, April 24, 2009

<http://query.nytimes.com/gst/fullpage.html?res=9A00EFDD143CF937A15757C0A96F9C8B63&sec=&spon=&pagewanted=all>). I Agree **YES** (If NO, provide the reason)

In order to implement the paradigm change it is necessary among other things to ask those applying for grants to estimate the contribution of their work for a quantitative reduction in cancer death and request them to provide their method of measurement to prove their claims including milestone dates for measurement.

As a practical example of how to achieve such change of direction of grant applications, requests for proposals should be redesigned and we would like your point-to-point input regarding the most recent request for comments on the rules for assigning grants by Cancer Prevention and Research Institute of Texas (CPRIT) to which Crosetto has responded on September 26, 2009 (www.crosettofoundation.org/uploads/315.pdf).

In Crosetto's comments, what do you consider more advantageous and beneficial to the patient and to the taxpayer, and what is not and why not?

Specifically for Crosetto's innovations in particle detection and in its related applications to medical imaging, we asked for his assistance to phrase some technical questions to submit to you. We would like to pass along your answers to cancer patients and taxpayers in the hope that the questions and answers will help clarify this specific issue.

Following are additional questions to which we kindly ask you to respond:

1. With the advent of Crosetto's first basic invention to greatly improve efficiency in particle detection and reduce cost which he described in several publications in 1992, did/does it still make sense to use expensive ultra-fast Ga-As, ECL, 40 nm technology in order to execute complex algorithms to identify particles and sustain a high input data rate? **NO**
2. Do you have any scientific argument to invalidate the claims that technically, Crosetto's higher performance and lower cost programmable level-1 trigger system can replace many different trigger systems? **NO** Do you agree that the reason why it was not implemented is because the problem of obtaining agreement from many institutions to adopt a single solution is greater than letting everyone develop their own system? **YES**
3. Do you agree that although Crosetto's invention is important for high energy physics because it reduces costs and increases performance, it is far more important in medical applications because it increases efficiency, reduces radiation to the patient, and enables early cancer detection? **YES**
4. Because the positron emission technology principle of operation measures a parameter (metabolism, blood flow, glucose consumption, etc.) within a unit of time, would you agree that it is important to capture very accurately all possible photons for a unit of time rather than a few of them focusing only on their spatial resolution? **YES**
5. Do you agree with concepts put forth in the document (article in Italian http://www.aimn.it/pubblicazioni/notiziario_online/notiziario_052_096.pdf, its translation in English is in preparation to be posted at www.crosettofoundation.org/uploads/288.pdf) published in the Italian Notiziario di Medicina Nucleare which led to the conclusion that improving efficiency should not be pursued because it will cause more "false positives" and "false negatives"? **NO**. Isn't this synonymous with asking that progress be stopped? **YES**
6. Can you invalidate with scientific argument Crosetto's superior solution or point out any other comparable solution for better or equal flexibility, lower cost (per photon captured) and higher performance (better accuracy in identifying particles and filtering noise, and greater efficiency defined as the ratio between the number of photons captured and those emitted by the radioisotope administered to the patient)? **NO**

I look forward to receiving your answers that I will pass on to cancer patients and taxpayers.

Sincerely,

Vanna Sereno,

Aldo Dutto,

Marita Banchio,

Fabio Dentello



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Translation of the original letter in Italian.

July 12, 2010

To: Prof. A. Stella
President University of Pavia
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27100, Pavia, Italy

Prof. Rampa
Vice-President University of Pavia

Prof. Balduini
Director of Research University of Pavia

Copy: Dr. V. Vigna
Cardio-Surgeon I.R.C.S.S, Policlinic S. Matteo, Pavia
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SUBJECT: Research and development of a low dosage, high-efficiency PET

Dear President Stella,

I am writing this letter upon request by Dr. Crosetto with whom I have been having in-depth discussions through conference calls together with other physicists across the world, and exchanged documents in regards to the proposal to build a new high-efficiency PET device called 3D-CBS, proposed by Dr. Crosetto. This equipment is designed to minimize the radiation dosage to the patient, a dose much lower than those required by current PET. The 3D-CBS maximizes the utilization of the radiation by capturing all possible signals from the tumor marker with respect to existing solutions at the lowest cost per signal captured while maintaining image resolution. This is all thanks to the innovations in the field of electronics by Dr. Crosetto and those he extended later to other fields such as: detector assembly, capability to execute complex algorithms in real-time, and other innovations as described in the attached documents. I am also attaching a document that describes the key features of the proposed 3D-CBS system.

To conclude, I find that this proposal is scientifically sound and it is my professional opinion that the 3D-CBS technology should be developed, possibly in collaboration with our University. I hope, therefore, that funding resources could be found locally, despite the current difficult economic situation, for example funds from local Bank Foundations or by European funding.

I am available for further clarification if necessary and I send you my best regards,

D. Scannicchio
Medical Physics Director
University of Pavia, Italy