

Final Progress Report for Research Projects Funded by Health Research Grants

Instructions: Please complete all of the items as instructed. Do not delete instructions. Do not leave any items blank; responses must be provided for all items. If your response to an item is “None”, please specify “None” as your response. “Not applicable” is not an acceptable response for any of the items. There is no limit to the length of your response to any question. Responses should be single-spaced, no smaller than 12-point type. The report **must be completed using MS Word**. Submitted reports must be Word documents; they should not be converted to pdf format. Questions? Contact Health Research Program staff at 717-783-2548.

- 1. Grantee Institution: Lankenau Institute for Medical Research**
- 2. Reporting Period (start and end date of grant award period): 1/1/11 – 12/31/11**
- 3. Grant Contact Person (First Name, M.I., Last Name, Degrees): Tam Mai-Nguyen**
- 4. Grant Contact Person’s Telephone Number: 484-476-2755**
- 5. Grant SAP Number: SAP# 4100054854**
- 6. Project Number and Title of Research Project: Project 2 - Role of TIMP-4 in Breast Cancer Assessment and Treatment**
- 7. Start and End Date of Research Project: 1/1/11 – 12/31/11**
- 8. Name of Principal Investigator for the Research Project: Margaretha Wallon, PhD**
- 9. Research Project Expenses.**

9(A) Please provide the amount of health research grant funds spent on this project for the entire duration of the grant, including any interest earned that was spent:

\$87,790.73 (DC: \$53,218.73, IC: \$34,572.00)

9(B) Provide the last names (include first initial if multiple individuals with the same last name are listed) of **all** persons who worked on this research project and were supported with health research funds. Include position titles (Principal Investigator, Graduate Assistant, Post-doctoral Fellow, etc.), percent of effort on project and total health research funds expended for the position. For multiple year projects, if percent of effort varied from year to year, report in the % of Effort column the effort by year 1, 2, 3, etc. of the project (x% Yr 1; z% Yr 2-3).

Last Name	Position Title	% of Effort on Project	Cost
Wallon	Principle Investigator	30%	\$24,835.72
DuHadaway	Res. Lab. Assoc	5%	\$4,067.70
Spahr	Clinical Trials Coordinator	3%	\$3,016.00
Chernick	Biostatistician	2%	\$3,175.00

9(C) Provide the names of **all** persons who worked on this research project, but who *were not* supported with health research funds. Include position titles (Research Assistant, Administrative Assistant, etc.) and percent of effort on project. For multiple year projects, if percent of effort varied from year to year, report in the % of Effort column the effort by year 1, 2, 3, etc. of the project (x% Yr 1; z% Yr 2-3).

Last Name	Position Title	% of Effort on Project
Wojciechowski	Hem/Onc Fellow	15%

9(D) Provide a list of **all** scientific equipment purchased as part of this research grant, a short description of the value (benefit) derived by the institution from this equipment, and the cost of the equipment.

Type of Scientific Equipment	Value Derived	Cost
None.		

10. Co-funding of Research Project during Health Research Grant Award Period. Did this research project receive funding from any other source during the project period when it was supported by the health research grant?

Yes ___X___ No _____

If yes, please indicate the source and amount of other funds:

Sharpe-Strumia Research Foundation of Bryn Mawr. Funding July1, 2011 – June 30, 2012. Award \$ 44,995.

11. Leveraging of Additional Funds

11(A) As a result of the health research funds provided for this research project, were you able to apply for and/or obtain funding from other sources to continue or expand the research?

Yes ___X___ No _____

If yes, please list the applications submitted (column A), the funding agency (National Institutes of Health—NIH, or other source in column B), the month and year when the application was submitted (column C), and the amount of funds requested (column D). If you have received a notice that the grant will be funded, please indicate the amount of funds to be awarded (column E). If the grant was not funded, insert “not funded” in column E.

Do not include funding from your own institution or from CURE (tobacco settlement funds). Do not include grants submitted prior to the start date of the grant as shown in Question 2. If you list grants submitted within 1-6 months of the start date of this grant, add a statement below the table indicating how the data/results from this project were used to secure that grant.

A. Title of research project on grant application	B. Funding agency (check those that apply)	C. Month and Year Submitted	D. Amount of funds requested:	E. Amount of funds to be awarded:
TIMP-4 in Breast Cancer Prognosis and Treatment	<input type="checkbox"/> NIH <input type="checkbox"/> Other federal (specify: _____) <input checked="" type="checkbox"/> Nonfederal source (specify: Martha Rogers Charitable Trust)	Nov., 2011	\$ 34,860	\$ 24,500
	<input type="checkbox"/> NIH <input type="checkbox"/> Other federal (specify: _____) <input type="checkbox"/> Nonfederal source (specify: _____)		\$	\$

	<input type="checkbox"/> NIH <input type="checkbox"/> Other federal (specify: _____) _____) <input type="checkbox"/> Nonfederal source (specify: _____)		\$	\$
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11(B) Are you planning to apply for additional funding in the future to continue or expand the research?

Yes ___ X ___ No _____

If yes, please describe your plans: Both DOD (Breast Cancer) and NIH has released funding announcements that we will submit grant application to during 2012.

12. Future of Research Project. What are the future plans for this research project?

- i) Continue the animal studies to further our understanding how TIMP-4 affects tumor growth and progression.
- ii) Continue our studies of changes in circulating TIMP-4 levels among patients undergoing systemic therapy for their breast cancer diagnosis.

13. New Investigator Training and Development. Did students participate in project supported internships or graduate or post-graduate training for at least one semester or one summer?

Yes ___ X ___ No _____

If yes, how many students? Please specify in the tables below:

	Undergraduate	Masters	Pre-doc	Post-doc
Male				1
Female	1			
Unknown				
Total	1			1

	Undergraduate	Masters	Pre-doc	Post-doc
Hispanic				
Non-Hispanic	1			1
Unknown				
Total	1			1

	Undergraduate	Masters	Pre-doc	Post-doc
White	1			1

Black				
Asian				
Other				
Unknown				
Total	1			1

14. Recruitment of Out-of-State Researchers. Did you bring researchers into Pennsylvania to carry out this research project?

Yes _____ No _____

If yes, please list the name and degree of each researcher and his/her previous affiliation:

15. Impact on Research Capacity and Quality. Did the health research project enhance the quality and/or capacity of research at your institution?

Yes _____ No _____

If yes, describe how improvements in infrastructure, the addition of new investigators, and other resources have led to more and better research.

16. Collaboration, business and community involvement.

16(A) Did the health research funds lead to collaboration with research partners outside of your institution (e.g., entire university, entire hospital system)?

Yes _____ No _____

If yes, please describe the collaborations: During the 2011 San Antonio Breast Cancer symposium collaboration was established with Dr. M. Lewis, Baylor Medical School, TX for the use of his series of stable transplantable human surgical breast cancer xenografts. Dr Lewis has established stable transplantable human breast cancer xenograft from surgical specimens. He has over 20 stable “triple-negative” human tumors with preserved gene expression profile and response to therapies as compared to the patients that the tumor originated from. These stable transplantable tumors will provide a far better assessment of therapies to counteract the effects of TIMP-4 than established cell-lines in that these tumors are maintained as tumors, not cell cultures, and frequently metastasize in a similar manner as observed in the clinic. Future work will include the use of these models rather than cell-line work.

16(B) Did the research project result in commercial development of any research products?

Yes _____ No _____

If yes, please describe commercial development activities that resulted from the research project:

16(C) Did the research lead to new involvement with the community?

Yes _____ No X _____

If yes, please describe involvement with community groups that resulted from the research project:

17. Progress in Achieving Research Goals, Objectives and Aims.

List the project goals, objectives and specific aims (as contained in the grant application's strategic plan). Summarize the progress made in achieving these goals, objectives and aims for the period that the project was funded (i.e., from project start date through end date). Indicate whether or not each goal/objective/aim was achieved; if something was not achieved, note the reasons why. Describe the methods used. If changes were made to the research goals/objectives/aims, methods, design or timeline since the original grant application was submitted, please describe the changes. Provide detailed results of the project. Include evidence of the data that was generated and analyzed, and provide tables, graphs, and figures of the data. List published abstracts, poster presentations and scientific meeting presentations at the end of the summary of progress; peer-reviewed publications should be listed under item 20.

This response should be a DETAILED report of the methods and findings. It is not sufficient to state that the work was completed. Insufficient information may result in an unfavorable performance review, which may jeopardize future funding. If research findings are pending publication you must still include enough detail for the expert peer reviewers to evaluate the progress during the course of the project.

Health research grants funded under the Tobacco Settlement Act will be evaluated via a performance review by an expert panel of researchers and clinicians who will assess project work using this Final Progress Report, all project Annual Reports and the project's strategic plan. After the final performance review of each project is complete, approximately 12-16 months after the end of the grant, this Final Progress Report, as well as the Final Performance Review Report containing the comments of the expert review panel, and the grantee's written response to the Final Performance Review Report, will be posted on the CURE Web site.

There is no limit to the length of your response. Responses must be single-spaced below, no smaller than 12-point type. If you cut and paste text from a publication, be sure symbols print properly, e.g., the Greek symbol for alpha (α) and beta (β) should not print as boxes (□) and include the appropriate citation(s). DO NOT DELETE THESE INSTRUCTIONS.

This project aims to further our understanding of how tissue inhibitor of metalloproteinase-4 (TIMP-4) affects breast cancer formation, growth and progression. The current study, funded

by PA Dept. of Health, consisted of two specific aims; SPECIFIC AIM 1: *Identify the effects of lumpectomy/mastectomy and standard treatment of TIMP-4 plasma levels in early stage breast cancer* and; SPECIFIC AIM 2: *Role of PI3K-inhibitors in preventing TIMP-4 induced aggressive behavior in breast cancer cells.*

The results from specific aim 1 were obtained by enrolling patients seeking treatment for their breast cancer diagnosis by Drs. Paul B. Gilman and Zonera A. Ali at the Cancer Center (CC), Lankenau Medical Center (LMC). Based on previous year's patient pools, we estimated that 20 patients meeting the inclusion criteria for the IRB approved protocol would be available for the study. During the past year, 17 patients meeting the inclusion criteria were seen at the CC. Of these, 13 were enrolled into the study consisting of one Asian, three African-Americans and nine Caucasians. The other four possible patients, two were not consented due to scheduling problems, one due to concerns regarding the patient's mental status, and the last one due to a malfunctioning port that prevented us from obtaining a pre-treatment sample and therefore excluded this patient. The thirteen enrolled patients have been followed during their treatment and at follow-up visits as determined by their treating oncologist. At each visit to the CC, a blood sample was drawn into an EDTA-coated tube ("purple-top" Vacutainer) for assessment of circulating levels of TIMP-4 by sampling of blood plasma. Blood plasma was separated by centrifugation at 6,000 rpm for 10 minutes at +4°C. Plasma was then transferred into fresh tubes and stored at -80°C until analyzed. A series of samples was then analyzed by gently thawing each sample on ice and then assessing the TIMP-4 levels in triplicate together with known amounts of a human recombinant TIMP-4 (R&D Systems) for establishment of a standard curve (see Figure 1 for typical standard curve).

The results from four of the patients that received a Taxol/Cuytoxan or Taxotere/Cytoxan are shown in Figure 2. The treatment resulted in decreased TIMP-4 levels but failed to maintain levels below the threshold level (solid line in figure).

The threshold level has been determined in another IRB approved on-going study where blood samples were collected from consented and age-matched healthy females to determine levels of circulating TIMP-4 in non-affected women. In accordance with common clinical practice, the threshold value was calculated set as the mean + (2 x STDEV) and found to be statistically significantly different from that mean level of TIMP-4 found among breast cancer patients.

Based on our previous retrospective study, this group of patients is at higher risk for recurrence, local and/or distant, of their disease than those with below threshold levels of TIMP-4. Continued follow-up of these patients and the addition of future patients will determine if the data so far is part of a trend or a coincidence.

There are an additional four patients that have received Taxol/Taxotere but in combination with other treatment/s than Cytoxan. The results (not shown) show a similar trend with a decrease in TIMP-4 levels that later on reverts to a higher TIMP-4 value than what was found in the initial specimen. Since these four patients represent four additional treatment

combinations we will not draw any conclusions from these patients at this point in time or include them with the four patients receiving TC (Fig 2).

Two patients that received Adriamycin/Cytoxan (AC) (LH10-007 and LH10-011, Figure 3) had low or fairly low levels of TIMP-4 prior to therapy. The TIMP-4 levels were reduced while on treatment and has been stable at the below threshold levels. The third patient (LH10-006, Figure 3) received two cycles of TC but went into cardiac arrest while receiving the second cycle. She was then switched to AC, the results from cycle 4 and forward are while receiving AC. In this patient the TIMP-4 level decreased to below threshold after the switch and has remained throughout her treatment and the following 6 months post-treatment. The patients receiving AC are the only ones where the TIMP-4 levels are maintained below threshold for any period of time, indicating that there might be something in the action of Adriamycin that interferes with the expression of TIMP-4. Again, based on the results from our previous retrospective study if these patients continue to maintain below threshold TIMP-4 values it is our prediction that these women are less likely than those seen in Figure 2 to suffer a recurrence or progress to metastatic disease.

The remaining patient received two cycles of therapy and was then diagnosed with stage IV disease and transferred to hospice. The patient passed away two months after starting her therapy.

These results were part of a poster presentation at the 2011 San Antonio Breast Cancer Symposium December 6-10, 2011 San Antonio, TX. Drs. M. Wallon and Brian Wojciechowski, a third year Hem/Onc fellow at LMC, attended the symposium.

An early assessment of the data obtained from the currently enrolled patients might provide an indication for a future recommendation to treat patients with triple-negative and TIMP-4 positive breast cancer with an Adriamycin therapy rather than a Taxol/Taxotere therapy.

Our goal for specific aim 2 was to assess a possible targeted treatment for TIMP-4 in a mouse cancer model. Due to unforeseen construction problems affecting our new and expanded animal vivarium, this aim got started late during the funding period. Though we currently do not have data from this aim, it is ongoing.

In preparation for the experiments, we had slow-release pellets made (Innovative Research of America, FL). The amount of TIMP-4 used to prepare the pellets was calculated to ensure a daily circulating level of 2,500 pmol/ml. In humans, this level is above the threshold for what is found non-cancer individuals and 7-8 higher what we generally find in non-tumor bearing nude mice. Also, in preparation for the experiments, we had as per the IACUC protocol to test the human cell-line to be used (MDA-MB-468) for mycoplasma and the treatments for the full panel of murine viruses (IMPACT 1 at RADIL, MO). All were found to be free of pathogens and the protocol was approved for use in the new IACUC vivarium.

Nude mice (nu/nu, Charles River) were purchased and are housed in the new vivarium for the proposed experiments. Each animal was allowed to acclimate to the facility for one week and

then all animals were ear tagged for identification purposes. A blood sample was drawn from one animal in each group to assess baseline levels of TIMP-4.

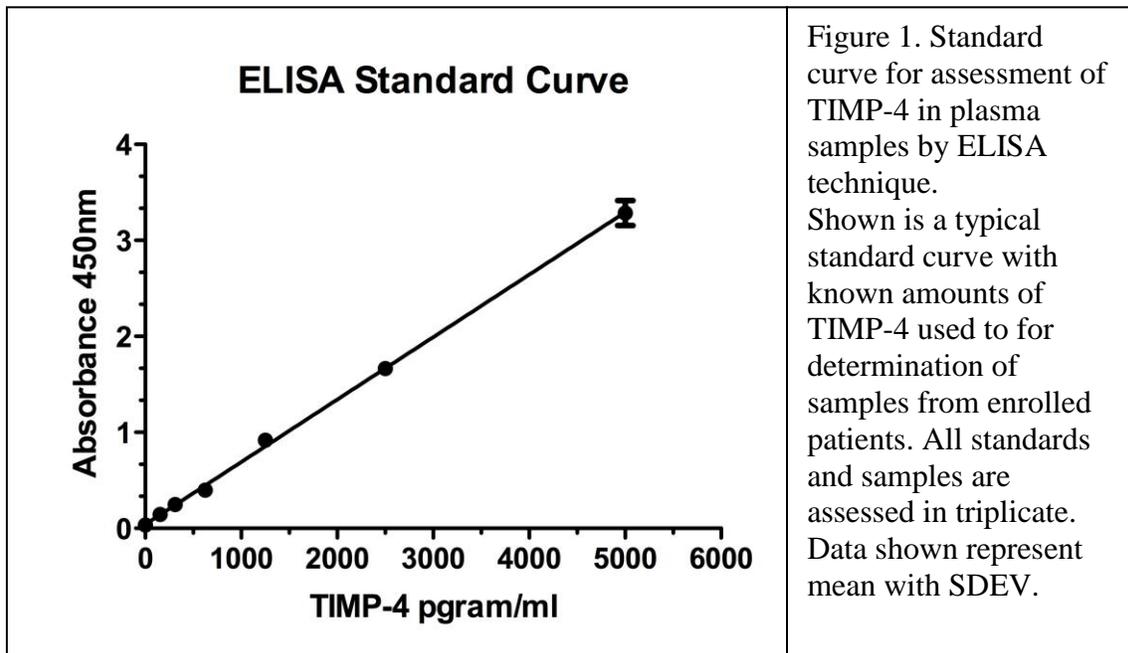
Then a slow-release pellet was implanted in the vicinity of the fourth left nipple. Half the mice received a TIMP-4 containing pellet and the remaining animals a control pellet. Incisions were closed with a sterile staple that was removed after one week. At that time, all animals had human tumor cells injected for tumor growth. The MDA-MB-468 cells were trypsinized and washed twice in sterile phosphate-buffered saline (PBS) and 5×10^6 in $100\mu\text{l}$ was injected in the left, fourth mammary fatpad near the previously implanted pellet. Two weeks later, animals had started to have palpable tumors and once the tumors reached 6mm in the largest dimension, treatments were initiated. We are currently waiting for all final data from these experiments. The anticipated results from this experiment will serve as preliminary data for a long-term grant proposal to extend the studies of TIMP-4 in breast cancer formation, growth and progression.

Abstract:

Novel Prognostic Marker for Triple-Negative Breast Cancers

Abstract # P4-09-21 Presented Friday December 9, 2011

San Antonio Breast Cancer Symposium, San Antonio, TX



TIMP-4 levels in patients receiving Taxol or Taxotere based therapy

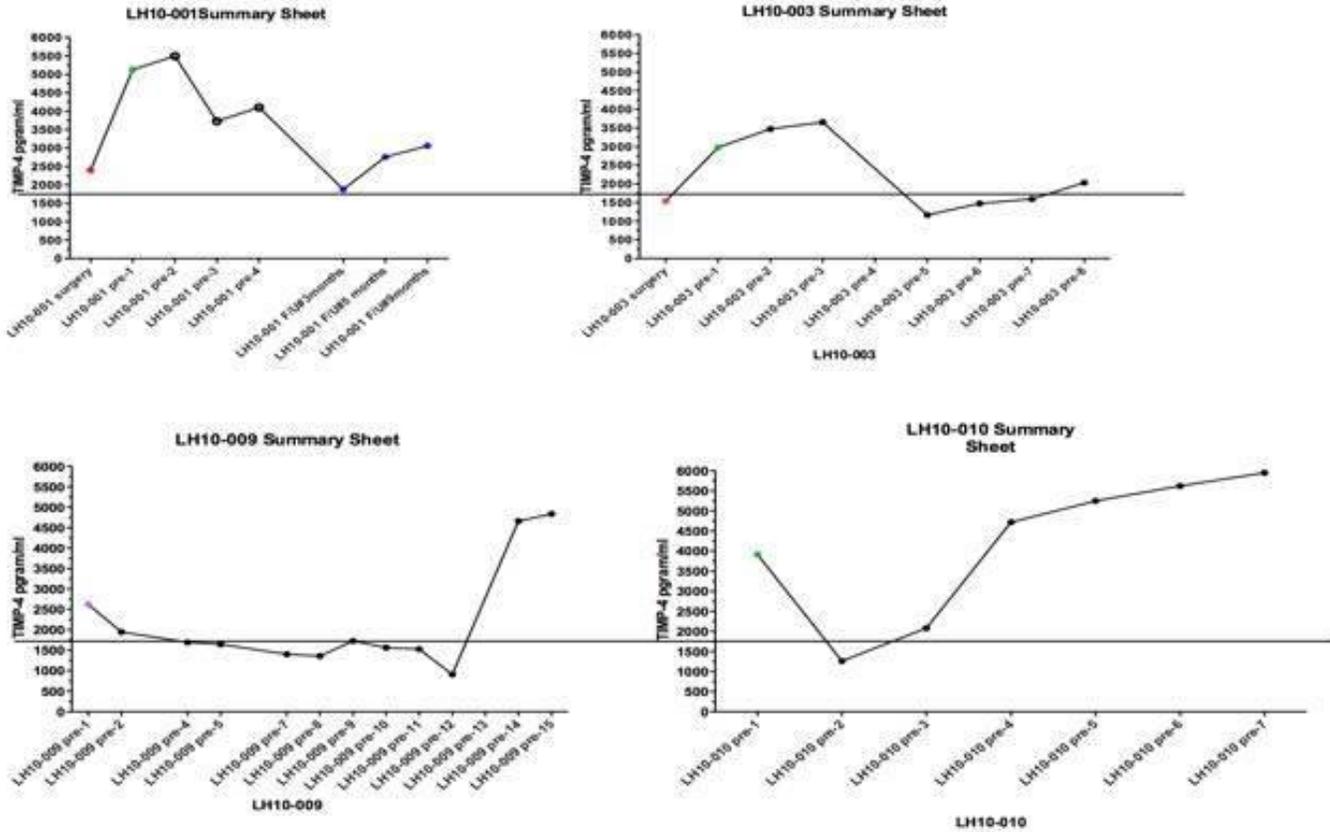


Figure 2 Effect of Taxol/Taxotere based therapy on circulating TIMP-4 levels in breast cancer patients. At various times, TIMP-4 levels decreased in all four patients only to increase to higher than surgery/pre-chemo values. Solid line indicated cut-off value, determined as mean TIMP-4 level in healthy control + (2 x STDEV), ■ = time of surgery, ■ = pre chemo, ● = cycle of chemo, ■ = follow-up appointment

TIMP-4 levels in patients receiving Adriamycin based therapy

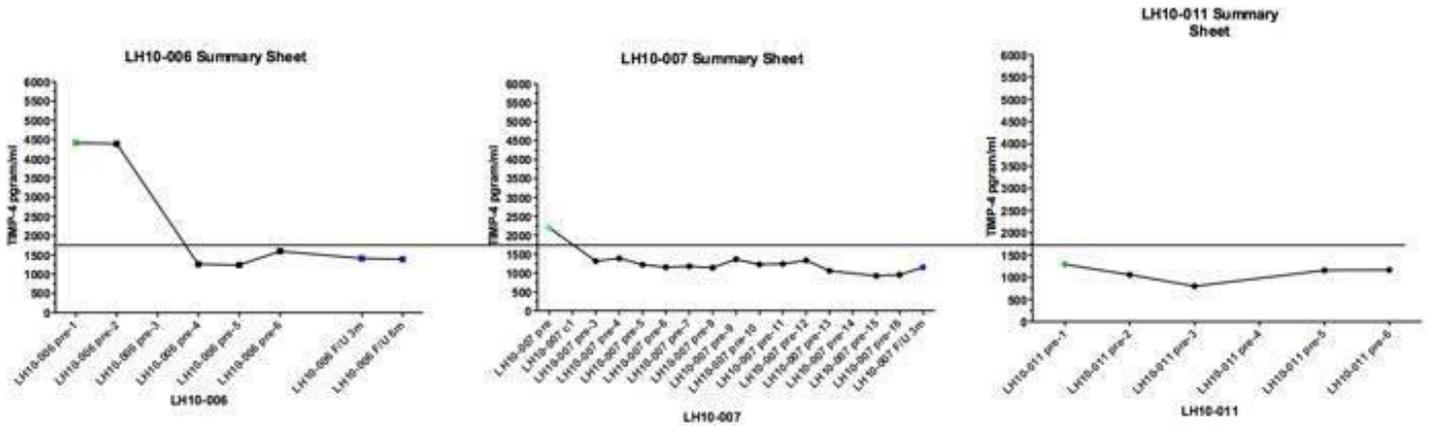


Figure 3 Effect of Adriamycin based therapy on circulating TIMP-4 levels in breast cancer patients. All patients obtained and maintained below threshold levels with Adriamycin based therapy. Suggesting a possible clinical benefit of Adriamycin therapy for patients with triple-negative and TIMP-4 positive tumors.

Solid line indicated cut-off value, determined as mean TIMP-4 level in healthy control + (2 x STDEV),
 ■ = pre chemo, ● = cycle of chemo, ■ = follow-up appointment

18. Extent of Clinical Activities Initiated and Completed. Items 18(A) and 18(B) should be completed for all research projects. If the project was restricted to secondary analysis of clinical data or data analysis of clinical research, then responses to 18(A) and 18(B) should be “No.”

18(A) Did you initiate a study that involved the testing of treatment, prevention or diagnostic procedures on human subjects?

Yes

No

18(B) Did you complete a study that involved the testing of treatment, prevention or diagnostic procedures on human subjects?

Yes

No

If “Yes” to either 18(A) or 18(B), items 18(C) – (F) must also be completed. (Do NOT complete 18(C-F) if 18(A) and 18(B) are both “No.”)

18(C) How many hospital and health care professionals were involved in the research project?

 2 Number of hospital and health care professionals involved in the research project

18(D) How many subjects were included in the study compared to targeted goals?

 20 Number of subjects originally targeted to be included in the study

 13 Number of subjects enrolled in the study

Note: Studies that fall dramatically short on recruitment are encouraged to provide the details of their recruitment efforts in Item 17, Progress in Achieving Research Goals, Objectives and Aims. For example, the number of eligible subjects approached, the number that refused to participate and the reasons for refusal. Without this information it is difficult to discern whether eligibility criteria were too restrictive or the study simply did not appeal to subjects.

18(E) How many subjects were enrolled in the study by gender, ethnicity and race?

Gender:

 Males

 13 Females

 Unknown

Ethnicity:

- 1 Latinos or Hispanics
 12 Not Latinos or Hispanics
 Unknown

Race:

- American Indian or Alaska Native
 1 Asian
 3 Blacks or African American
 Native Hawaiian or Other Pacific Islander
 9 White
 Other, specify: _____
 Unknown

18(F) Where was the research study conducted? (List the county where the research study was conducted. If the treatment, prevention and diagnostic tests were offered in more than one county, list all of the counties where the research study was conducted.)

Montgomery County

19. Human Embryonic Stem Cell Research. Item 19(A) should be completed for all research projects. If the research project involved human embryonic stem cells, items 19(B) and 19(C) must also be completed.

19(A) Did this project involve, in any capacity, human embryonic stem cells?

- Yes
 No

19(B) Were these stem cell lines NIH-approved lines that were derived outside of Pennsylvania?

- Yes
 No

19(C) Please describe how this project involved human embryonic stem cells:

20. Articles Submitted to Peer-Reviewed Publications.

20(A) Identify all publications that resulted from the research performed during the funding period and that have been submitted to peer-reviewed publications. Do not list journal abstracts or presentations at professional meetings; abstract and meeting presentations should be listed at the end of item 17. **Include only those publications that acknowledge the Pennsylvania Department of Health as a funding source** (as required in the grant agreement). List the title of the journal article, the authors, the name of the peer-reviewed publication, the month and year when it was submitted, and the status of publication (submitted for publication, accepted for publication or published.). Submit an electronic

copy of each publication or paper submitted for publication, listed in the table, in a PDF version 5.0.5 (or greater) format, 1,200 dpi. Filenames for each publication should include the number of the research project, the last name of the PI, the number of the publication and an abbreviated research project title. For example, if you submit two publications for PI Smith for the “Cognition and MRI in Older Adults” research project (Project 1), and two publications for PI Zhang for the “Lung Cancer” research project (Project 3), the filenames should be:

Project 1 – Smith – Publication 1 – Cognition and MRI

Project 1 – Smith – Publication 2 – Cognition and MRI

Project 3 – Zhang – Publication 1 – Lung Cancer

Project 3 – Zhang – Publication 2 – Lung Cancer

If the publication is not available electronically, provide 5 paper copies of the publication.

Note: The grant agreement requires that recipients acknowledge the Pennsylvania Department of Health funding in all publications. Please ensure that all publications listed acknowledge the Department of Health funding. If a publication does not acknowledge the funding from the Commonwealth, do not list the publication.

Title of Journal Article:	Authors:	Name of Peer-reviewed Publication:	Month and Year Submitted:	Publication Status (check appropriate box below):
1.				<input type="checkbox"/> Submitted <input type="checkbox"/> Accepted <input type="checkbox"/> Published
2.				<input type="checkbox"/> Submitted <input type="checkbox"/> Accepted <input type="checkbox"/> Published
3.				<input type="checkbox"/> Submitted <input type="checkbox"/> Accepted <input type="checkbox"/> Published

20(B) Based on this project, are you planning to submit articles to peer-reviewed publications in the future?

Yes ___ X ___ No _____

If yes, please describe your plans:

With the obtained funding from Martha W. Roger’s Charitable Trust, we will be able to expand the animal studies to much more comprehensive study for publication during the latter part of 2012 possibly early 2013. The results from the clinical portion of the study will also be included in a future publication once we have enrolled sufficient patients for a reliable assessment of changes in circulating TIMP-4 levels based on the treatment received.

21. Changes in Outcome, Impact and Effectiveness Attributable to the Research Project.

Describe the outcome, impact, and effectiveness of the research project by summarizing its impact on the incidence of disease, death from disease, stage of disease at time of diagnosis, or other relevant measures of outcome, impact or effectiveness of the research project. If there were no changes, insert “None”; do not use “Not applicable.” Responses must be single-spaced below, and no smaller than 12-point type. DO NOT DELETE THESE INSTRUCTIONS. There is no limit to the length of your response.

None

22. Major Discoveries, New Drugs, and New Approaches for Prevention Diagnosis and Treatment.

Describe major discoveries, new drugs, and new approaches for prevention, diagnosis and treatment that are attributable to the completed research project. If there were no major discoveries, drugs or approaches, insert “None”; do not use “Not applicable.” Responses must be single-spaced below, and no smaller than 12-point type. DO NOT DELETE THESE INSTRUCTIONS. There is no limit to the length of your response.

The results to date from the clinical specimens indicate that there might be an advantage in treating triple-negative breast cancer patients with elevated TIMP-4 levels with Adriamycin/Cytosan over a Taxol or Taxotere/Cytosan. Based on our previously published findings demonstrating that elevated TIMP-4 levels are strongly associated with increased mortality even among the smaller (T1N0M0) hormone-receptor negative tumors, the currently obtained early trend might result in future recommendation for treatment of triple-negative and TIMP-4 positive tumors to better suppress the TIMP-4 levels in an effort to improve survival for these patients that currently are lacking targeted therapies.

23. Inventions, Patents and Commercial Development Opportunities.

23(A) Were any inventions, which may be patentable or otherwise protectable under Title 35 of the United States Code, conceived or first actually reduced to practice in the performance of work under this health research grant? Yes _____ No X

If “Yes” to 23(A), complete items a – g below for each invention. (Do NOT complete items a - g if 23(A) is “No.”)

- a. Title of Invention:
- b. Name of Inventor(s):
- c. Technical Description of Invention (describe nature, purpose, operation and physical, chemical, biological or electrical characteristics of the invention):

- d. Was a patent filed for the invention conceived or first actually reduced to practice in the performance of work under this health research grant?

Yes _____ No _____

If yes, indicate date patent was filed:

- e. Was a patent issued for the invention conceived or first actually reduced to practice in the performance of work under this health research grant?

Yes _____ No _____

If yes, indicate number of patent, title and date issued:

Patent number:

Title of patent:

Date issued:

- f. Were any licenses granted for the patent obtained as a result of work performed under this health research grant? Yes _____ No _____

If yes, how many licenses were granted? _____

- g. Were any commercial development activities taken to develop the invention into a commercial product or service for manufacture or sale? Yes _____ No _____

If yes, describe the commercial development activities:

23(B) Based on the results of this project, are you planning to file for any licenses or patents, or undertake any commercial development opportunities in the future?

Yes _____ No _____ X _____

If yes, please describe your plans:

24. Key Investigator Qualifications. Briefly describe the education, research interests and experience and professional commitments of the Principal Investigator and all other key investigators. In place of narrative you may insert the NIH biosketch form here; however, please limit each biosketch to 1-2 pages. *For Nonformula grants only – include information for only those key investigators whose biosketches were not included in the original grant application.*

Name: U. Margaretha Wallon

POSITION TITLE: Research Assistant Professor

EDUCATION/TRAINING:

1985 – University of Lund, Lund, Sweden - B.S. - Animal Physiology

1990 – University of Lund, Lund, Sweden - Ph.D. - Animal Physiology

A. Research and Professional Experience:

1990-1992	Research Associate (post-doctoral trainee), University of Arizona, Tucson, AZ
1992-1993	Assistant Research Scientist, University of Arizona, Tucson, AZ
1993-1996	Research Associate (post-doctoral trainee), University of British Columbia, Vancouver, BC, Canada
1996-1998	Senior Fellow (post-doctoral trainee), University of Washington, Seattle, WA
1998-2000	Senior Postdoctoral Fellow, Lankenau Institute for Medical Research, Wynnewood, PA
2000-present	Research Assistant Professor, (Lankenau Institute for Medical Research, Wynnewood, PA
2006-present	Adjunct Member of Kimmel Cancer Center, Thomas Jefferson University

Awards and Honors:

1989-1990	The Royal Physiographical Society, Research Scholarship
1989-1990	The Royal Physiographical Society, Travel Award
1989	The Arvid and Elisabeth Nilsson Foundation, Travel Award
1989	The Hierta-Retzius Foundation, Research Scholarship
1990	The Berta Kamprad Foundation, Research Scholarship
1990	The Kempe Foundation, Research Scholarship
1990	The Magnus Bergvall Foundation, Research Scholarship

B. Selected peer-reviewed publications (in chronological order).

1. Wallon, U.M., Holm, I., Thorsson, L., Oredsson, S.M., and Heby, O. Residual proliferative capacity in F9 teratocarcinoma stem cell cultures treated with a -difluoromethylornithine, an inducer of parietal endoderm differentiation. *Cancer Lett.* 1990; 50:103-107.
2. Wallon, U.M., Persson, L., and Heby, O. Superinduction of ornithine decarboxylase (ODC) by actinomycin D is due to stimulation of ODC mRNA translation. *FEBS Lett.* 1990; 268:161-164.
3. Wallon, U.M., Shassetz, L.R., Cress, A.E., Bowden, G.T., and Gerner, E.W. Polyamine-dependent expression of the matrix metalloproteinase matrilysin in a human colon cancer-derived cell-line. *Mol. Carcinog.* 1994; 11:138-144.
4. Steffensen, B., Wallon, U.M., and Overall, C.M. Extracellular matrix binding properties of recombinant fibronectin type II-like modules of human 72-kDa gelatinase/Type IV collagenase. *J. Biol. Chem.* 1995; 270:11555-11566.
5. Wallon, U.M., Persson, L., and Heby, O. Regulation of ornithine decarboxylase expression during Ehrlich ascites tumor cell growth. *Mol. Cell. Biochem.* 1995; 146:39-44.

6. Iamaroon, A., Wallon, U.M., Overall, C.M., and Diewert, V.M. Expression of 72-kDa gelatinase in the developing mouse craniofacial complex. *Arch. Oral Biol.* 1996; 41:1109-1119.
7. Wallon, U.M., and Overall, C.M. The COOH-terminal hemopexin-like domain of human gelatinase A (MMP-2) requires Ca²⁺ for fibronectin and heparin binding: binding properties of recombinant gelatinase A C-domain to extracellular matrix and basement membranes. *J. Biol. Chem.* 1997; 272:7473-7481.
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Patents and Licenses:

1. Wallon, U. M., Prendergast, G. C., and Knudsen, K. A.: Prognostic Cancer Markers. US Patent No.60/753,619, 2006.