Literature Review:

1. Denise Kirschner, John Carl Panetta (1997) – In this paper they illustrate through mathematical modeling the dynamics between tumor cells, immune–effector cells, and IL-2. These efforts are able to explain both short tumor oscillations in tumor sizes as well as long term tumor replase.

2. Mikhail Kolev (2003) – In this paper they propose and analyze a model of the competition between cancer and the acquired immune system. The model is a system of integro-differential bilinear equations. The role of the hum oral response is analyzed. The simulations are related to the immunotherapy of tumors with antibodies of cancer dormancy and recurrence, and we provide a possible explanation of why adoptive immunotherapy protocols can sometimes promote tumor. Opposed to active vaccination protocols based on tumor-antigen pulsed.

3. Konstantin G. Arbeev, Svetlana V. Ukraintseva, Lyubov S. Arbeeva, Antoli I. Yashin (2005) – In this paper they discuss several mathematical models contributing to the explanation of this phenomenon. They extended the Stehler and Mildvan model of aging and mortality and apply it to the analysis of data on cancer incidence at old ages. The model explains the observed time trends and age patterns of cancer incidence rates.

4. Vito Quaranta, Alissa M. Weaver, Peter T. Cummings, Alexander R.A. Anderson (2005) - In this paper Producing information both at the basic and clinical levels is no longer the issue. Rather, how to handle this information has become the major obstacle to progress. Intuitive approaches are no longer feasible. The next big step will be to implement mathematical modeling approaches to interrogate the enormous amount of data being produced and extract useful answers.
5. **Dr. F Michor (2006)** – In this paper the importance of these new methods of cancer treatment necessitates further research into the dynamic interactions between cancer cells and therapeutic agents, as well as a means of analysing their relationship quantitatively. The present review outlines the application of mathematical modelling to the dynamics of targeted cancer therapy, focusing particular attention on chronic myeloid leukaemia and its treatment with imatinib (Glivec).

6. **B. Ribba, O. Saut, T. Colin, D. Bresch, E. Grenier, V. J. P. Boissel (2006)** – In this paper they developed a mathematically based model which integrates cell cycle regulation and macroscopic tumor dynamics. By simulating the model, they evaluated the efficacy of MMPi therapy. Simulation result predict the lack of efficacy of MMPi in advanced cancer patients.

7. **Sandeep Sanga, John P Sinek, Hermann B Frieboes, Mauro Ferrari, John P Fruehauf and Vittorio Cristini (2006)** – In this paper a multiscale computer simulator founded on the integration of experimental data and mathematical models can provide valuable insights into these processes and establish a technology platform for analyzing the effectiveness of chemotherapeutic drugs, with the potential to cost – effectively and efficiency screen drug candidates during the drug – development process.

8. **Ming Zhang, Chandra Das Hernan Vasquez, Dolly Aguilera, Peter E. Zage, Vidya Gopalkrishnan and Johannes E. Wolf (2006)** – In this paper the cell number v/s time data were fitted mathematically to the two term exponential model. The two term exponential model predicted tumor repopulation in this in vitro system.

9. **Ming Zhang, Chandra Das Hernan Vasquez, Dolly Aguilera, Peter E. Zage, Vidya Gopalkrishnan and Johannes E. Wolf (2006)** – In this paper
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10. **Heiko Enderling, Mark A.J Chaplain, Alexander R.A, Anderson, Jayant S.Vaidya (2007)** - In this paper Their mathematical model of the stepwise development of breast cancer verifies the idea that the normal mutation rate in genes is only sufficient to give rise to a tumor within a clinically pathway.

11. **Patrick S. Carroll, M. A. (2007)** – In this paper Forecasts are made using a linear regression model with these explanatory variables. Previous Forecasts using the same model and incidence data for years through 1997 for England & Wales are compared with numbers of cancers observed in ytears from 1998-2004 in an appendix.

12. **Tiina Roose, S. Jonatchan Chapman, Philip K. Maini (2007)** – In this paper outline a number of illustrative mathematical models describing the growth of avascular tumors. They provided a relatively comprehensive list of existing models in this area and discuss several representative models in greater detail. Some possible future avenues of mathematical modeling of avascular tumor development are outlined together with a list of key question.

13. **Ingeborg MM Van Leeuwen, Carina M Edwards, Mohhamed Ilyas, Helen M Byrne (2007)** – In this paper Colorectal cancer (CRC) is one of the best characterized cancers, with extensive data documenting the sequential gene mutations that underlie its development. In this article they explain why mathematical modeling represents a natural tool or language with which to integrate these data and , in so doing to provide insight into CRC.
14. F. Castiglione, B. Piccoli (2007) – In this paper construct a mathematical model describing the cancer-immune interaction and secondly one applies the theory of optimal control to determine when and to which extent to stimulate the immune system by means of an immunotherapeutic agent administered in discrete variable doses within the therapeutic period.

15. Monika Joanna Piotrowska, Heiko Enderling, Uwe an der Heiden Michael C. Mackey (2008) – In this paper they present an overview of different mathematical and numerical approaches to describe stem cell proliferation and differentiation and the development of small cancer stem cell populations that are origins of neoplasm disease. They introduce recently developed models that address different aspects of stem cell dynamics and cancer development.

16. Karnon, J, Mark Mackay and T.M. Mills (2009) – In this paper cover various Settings in health care, utilize a variety of mathematical modeling techniques, and include descriptions of the impact of the model on the health care system. A cohort Markov model was used to identify the most cost-effective screening programme for cervical cancer. The model describes the development of precancerous lesions and progression via multiple stages to the advanced form of cervical cancer, and subsequent death.

17. Badal Joshi, Xueying Wang, Sayanti Banerjee, Haiyan Tian, Anastasios Matzavinos and Mark A.J Chaplain (2009) – In this paper they investigate the effect of different cancer vaccination protocols on the well documented phenomena of cancer dormancy and recurrence, and the provided a possible explanation of why adoptive immunotherapy protocols can sometimes promote tumor growth instead of inhibiting it as opposed to active vaccination protocols based on tumor – antigen pulsed dendritic cells.
18. A. Ghaffari and N. Nasserifar (2009) – In this article a new mathematical modeling is developed for the dynamics between tumor cells, normal cells, immune cells, chemotherapy drug concentration and drug toxicity. Then, the theorem of Lyapunov stability is applied to design treatment strategies for drug protocols that ensure a desired rate of tumor cell kill and push the system to the area with smaller tumor cells.

19. Gail S. Lebovic, Alan Hollingsworth, Stephen Feig (2010) - In this paper attempts a close examination of current methods available for risk assessment, screening and prevention programs. These programs must be carefully considered and analyzed prior to implementing cost-saving changes to current clinical standards that have proven successful in decreasing mortality from breast cancer throughout the world.

20. Diptendra Kumar Sarkar, Abhiram Maji, Sujitesh Saha, Jayanta Kumar Biswas (2011) - In this paper Oncoplastic breast surgery is the fusion of oncological and surgical principles to gain successful breast tumor excision with good cosmesis. It is widely accepted and popular method in the western world. However the picture is different in India. This study is a retrospective study spanning a period of 5 years, from 2005-2009, on breast cancer patients using oncoplastic techniques. It included a sample size of 30 patients attending breast care unit of Institute of Post Graduate Medical Education & Research, Kolkata.

21. Padmanabh Inamdar, Garima Mehta (2011) - In this paper Diet, obesity and other lifestyle factors have been implicated in its etiology. The role of obesity and HDL-C levels in patients with rural background in etiology of breast cancer. Here used Pearson Chi-Square test, Continuity Correlation &
Independent sample t test to assess the significance of weight, BMI and Serum HDL-C level between breast cancer patients and controls.

22. **Preetinder Brar, Satish Jain, Iqbal Singh(2011)** – In this paper Complication of Medical records of patients were also analyzed for age, menopausal status, clinical presentation, duration of symptoms, side effected, quadrant, size of breast lump, axillary lymphadenopathy, clinical staging, histopathology report and stage, estrogen and progesterone receptor status, her -2neu positivity and adjuvant treatment received.

23. **Raghunandan Vikram, Aparna Balachandran(2011)** – In this paper Pancreatic cancer is a relative common malignancy of the gastrointestinal tract for which complete surgical excision remains the only curative option. In this article they discussed & provided a brief overview of anatomy and use of imaging in staging pancreatic cancer. The treatment of this cancer shows that the coupled with recent advances in use of adjuvant and neoadjuvant chemoradiotherapy and improve surgical techniques, this has drastically changed our outlook of this disease.

24. **Ray Lin, Prabhakar TRipuranemi(2011)** – In this paper reviews the role of radiation therapy in women with early – stage breast cancer addressing patients trials in breast-conserving therapy, as well as the different treatment techniques available to women .

25. **Sameer Damle, Christine B. Teal, Joanne J Lenert, Elizabeth C(2011)** – In this paper In their study investigated if there are increasing trends on their patient population toward CM & CPM & identifies common factors associated with those electing to have more extensive surgery. Patients who
underwent CM were compared with patients undergoing CM & CPM. Mastectomy rates at this institution have not shown the recent sharp increase observed by authors.

26. *Suraj Manjunath, Jyoti S. Prabhu, Rohini Kaluve, Marjorie Correa, T.S. Sridhar (2011)* - In this paper Data from the west show not more than one-third of all breast cancers to be ER negative when corrected for age, and about half of that proportion (15%) to be Triple negative (TPN), i.e. lacking ER, progesterone receptor as well as HER-2 receptors. Here use the polymer technology which is more sensitive than the more routinely performed avid in-biotin complex (ABC) method. Thus it is a result of tumor biology rather than poor IHC technique or demographic factors like age and advanced stage at presentation.

27. *Tarun Kumar, Mahrsh D. Patel, Rexeena Bhargavan, Prabhat Kumar, Mahesh H. Patel, Kiran Kothari, Bina Brahmbhatt (2011)* - In this paper reporting the largest phyllodes tumor and the role of radiotherapy in patients of phyllodes tumor of breast, based on Medline search for articles in English language using keywords “role of radiotherapy in phyllodes tumor of breast.” Patients had an uneventful postoperative course and are presently on three monthly follow up since 1 year.

28. *E. Beretta, V. Capasso and N. Morozova (2012)* - In this paper they propose a mathematical model of cancer stem cell population behaviour, based on specific features of cancer stem cell divisions and including, as a mathematical formalization of cell-cell communications, an underlying field concept. We compare the qualitative behaviour of mathematical models of stem cells evolution, without and with an underlying signal.
29. **T. Stiehl and A. Marciniak-Czochra (2012)** – In this paper they propose a mathematical model of cancer stem cell dynamics in leukemias. They apply the model to compare cellular properties of leukemic stem cells to those of their benign counterparts. Using linear stability analysis we derive conditions necessary and sufficient for expansion of malignant cell clones, based on fundamental cellular properties.

30. **Knud Juel (2012)** – In this paper illustrates the relationship between demographic factors and mortality from a large group of cancers, which increases progressively from young adult life into old age. One-year age-specific mortality rates between 30 and 79 years of age were computed for 14 different cancer sites among both males and females, in five ten-year birth cohorts and for the capital and provinces.