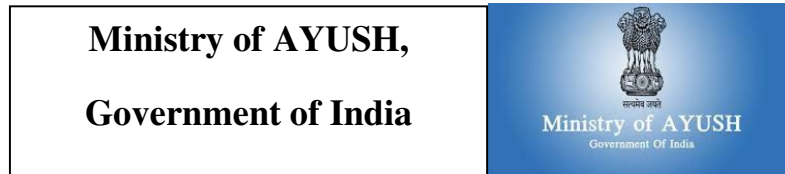


## **EXECUTIVE SUMMARY**

### **“CONSULTATIVE MEET TO PRIORITIZE AYUSH RESEARCH ACTIVITIES IN THE FIELD OF CANCER FOR INTERNATIONAL COLLABORATION”**

**Pune, 21<sup>st</sup> and 22<sup>nd</sup> February 2016**

**At Behest of**



**Organized by**



**Indian Association for the Study of  
Traditional Asian Medicine  
[IASTAM – India]**

***Prepared by – Dr. Narendra Bhatt & Dr. D. C. Katoch  
Conveners***

**Contact-**

**[drnsbhatt@gmail.com](mailto:drnsbhatt@gmail.com);**

**[dc.katoch@gov.in](mailto:dc.katoch@gov.in)**

## **EXECUTIVE SUMMARY**

### **CONSULTATIVE MEET TO PRIORITIZE AYUSH RESEARCH ACTIVITIES IN THE FIELD OF CANCER FOR INTERNATIONAL COLLABORATION, held at Puneon 21<sup>st</sup> and 22<sup>nd</sup> February 2016.**

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- I. Background**
  - II. Objectives**
  - III. Participation**
  - IV. Methodology**
  - V. Deliberations**
  - VI. Outcome**
  - VII. Recommendations**
  - VIII. Road Ahead**
- Appendices*

#### **I. BACKGROUND**

Cancer is a dreaded disease in need of medical solutions. From time to time efforts have been made to look for possible solutions from the indigenous systems of medicine. This interest has varied from efforts to understand disease and to search for a cure with a plant or product or to look for the role these systems can play in alleviating the pain.

Despite huge research cancer as a disease remains an enigma. Cancer as a disease process, a metastatic state is understood. However, the information about its causation, disease progression, outcome and clinical relevance vary from specific to non-specific and certain to uncertain.

India with its diverse culture and history practices medical pluralism as a part of national health and medical care delivery. An independent 'Ministry of AYUSH' governs and regulates the indigenous systems of medicine namely Ayurved, Unani, Yoga, Siddha and Homeopathy.

As duly recognized, regulated and practicing systems in India AYUSH has potential to play an important role to attend to several aspects of Cancer Care. These systems are rich in clinical information, diagnoses and prognostics and views about causative factors. Each of these systems offer variety of therapies and wide range of therapeutics comprising of products of natural origin and formulations based on its own therapeutic rationale. If understood based on their own paradigm in a systematic manner these systems offer great potentials to evolve innovative and integrative modalities to take on challenges of the present day Cancer care and cure.

With a view to identify, define and develop role of AYUSH in the field of Cancer care, mainly for international collaborations, discussions between representatives of different systems and those of conventional medicine and other bio sciences was felt necessary.

IASTAM is a platform organization for intellectual deliberations in the field of 'Traditional Asian Medicine'. It acts as a catalyst to bring together different disciplines to discuss and develop growth of traditional medicine knowledge systems. IASTAM - India is reputed for conducting result oriented seminars, symposia, and *conclaves* on subjects of relevance at national level and has also organized International conferences on Asian Medicine. Proceedings of these meets are acclaimed for relevance and reference.

This consultative meet was organized by IASTAM India, at behest of Ministry of AYUSH, Government of India to deliberate on Cancer, an issue of great significance in an outcome oriented manner.

## II. OBJECTIVES

Productive research in AYUSH becomes more meaningful with an integrative approach at fundamental level. This meet aimed to attend to this basic need while planning to evolve an integrative roadmap.

This consultative meet aimed to identify potential therapeutic solutions and AYUSH interventions (therapies) that could help to address one or more aspects in cancer care and cure. The long term objective of this meet was to consider and evolve a structure for potential role of AYUSH and utilization of intellectual resources and nationally available institutional and scientific capabilities in an organized manner in Cancer care.

The consultative meet in addition to look for drug development had focus on complementary treatment modalities, diet and life-style suggestions, body & mind approaches and causative factors. It considered prevention, treatment and protective mechanisms as observed in AYUSH Systems.

## III. PARTICIPATION

More than 100 experts from various fields were approached based on available information and recommendations. 72 initial invites were sent. After confirming their involvement in the area of cancer research or treatment an invite was sent to confirm their participation. Experiences of practitioners known to treat cancer cases and representation of diverse fields were considered while finalizing the list of

participants. About 60 non-official experts were finalized of which 52 could manage to participate at a comparatively short notice.

57 participants who were present on both the days as follows.

|                   |                                    |     |
|-------------------|------------------------------------|-----|
| Ayurveda – 24     | Oncologist                         | – 7 |
| Yoga – 02         | Biological & Life Sciences         | – 9 |
| Unani– 02         | Chemists & Pharmaceutical Sciences | – 4 |
| Homeopathy– 05    |                                    |     |
| AYUSH Officials–4 | <b>TOTAL - 57</b>                  |     |

The group comprised of researchers, academics, practitioners and administrators, all involved with cancer treatment or research. Many have more than one kind of expertise. Participants came from all over India representing institutes or practices from 19 cities. *[List Attached – Appendix I (A)]*

A list of institutes that were represented at the meet is attached herewith.

*[List Attached – Appendix I (B)]*

#### IV. METHODOLOGY

All the invited participants representing diverse expertise were sent a questionnaire to get primary idea about issues and approaches, observed and experienced while utilizing AYUSH means in the field of Cancer. 32 responses from experts were also considered while evolving the methodology for the consultative meet. Views of 6 experts who participated at the meet at very short notice could not be included.

The responses received from majority of the participants are summarized. *[Appendix– II(A) Questionnaire and II (B) Summary of Responses]*

This was a 2-day meet with 57 participants representing different disciplines of systems & science. The participants approached were from Ayurved, Homeopathy, Unani, Siddha, Yoga, Bio medicine and Modern medicine.

The meet was planned in 4 sessions as -

*Session I - Understanding Cancer Care Needs & AYUSH Possibilities*

*Session II - Identifying Specific Needs and High Potentials*

*Session III - Approaches and Solutions*

*Session IV - Prioritization - Areas & Activities*

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Executive Summary –

**CONSULTATIVE MEET TO PRIORITIZE AYUSH RESEARCH ACTIVITIES IN THE FIELD OF CANCER FOR INTERNATIONAL COLLABORATION**

## V. DELIBERATIONS

In the *opening session* Dr. D. C. Katoch, Advisor (Ayurveda), Ministry of AYUSH, and convener of the meet welcomed the participants and explained the background of the meet. He informed of forthcoming visit by expert group from USA to jointly plan for research activities in the field of Cancer. He emphasized to focus more on possible outcome that could be converted into action plan. He informed of variety of participating expertise involved at the meet.

**Dr. Narendra Bhatt**, convener of the meet gave a presentation to explain the need, objective, methodology and expected outcome of the meet. He requested the participants to look for novel approaches, put efforts for integrative modalities and to plan for time bound projects.

This was followed by an introductory session.

In the next session, each of the participants was asked to give most important and specific suggestions with respect to cancer treatment. Bio-medical experts including oncologist were requested to give their views on unmet needs in cancer or their suggestions of AYUSH potentials while the participants from AYUSH were requested to share their experiences and provide topmost suggestions.

All these suggestions were displayed on flip charts and enlisted for next steps.

These suggestions were put into 5 major categories to drive the activities towards specific outcomes.

In the next session a series of presentations were made followed by lively discussions. The presentations included experiences by AYUSH practitioners, research modalities followed by different scientists and clinical needs and validation opportunities in cancer treatment.

### **Following presentations were made by experts.**

| Sr. No. | Name of Presenter      | Title of Presentation                               | Name of Institute                                                                                             |
|---------|------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| 1       | Dr. Ravi Mehrotra      | ➤ Identifying Specific Needs and Potential of AYUSH | National Institute of Cancer Prevention & Research<br>Institute of Cytology & Preventive Oncology (ICPO-ICMR) |
| 2       | Dr. Prabhash Kumar     | ➤ AYUSH Potentials from Oncologist View Point       | Tata Memorial Hospital                                                                                        |
| 3       | Dr. NagarathnaRaghuram | ➤ Role of Yoga in Cancer                            | SVYASA                                                                                                        |
| 4       | Dr. Chitra Mandal      | ➤ A Promising Therapeutic Lead (CM:5) Hope for      | CSIR – Indian Institute of Chemical Biology                                                                   |

Executive Summary –

**CONSULTATIVE MEET TO PRIORITIZE AYUSH RESEARCH ACTIVITIES IN THE FIELD OF CANCER FOR INTERNATIONAL COLLABORATION**

|    |                              |                                                                                                                           |                                                                                |
|----|------------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
|    |                              | Targeting Cancer and Cancer Stem Cells<br>➤ Unmet needs in Cancer                                                         |                                                                                |
| 5  | Dr. Subhash Padhye           | ➤ Targeting Cancer Stem Cells Through Phytochemicals And Their Analogs                                                    | Interdisciplinary Science & Technology Research Academy, Pune                  |
| 6  | Dr. Ruchika KaulGhanekar     | ➤ Multi-Targeting of Cancer Cells through Herbal Based Approach                                                           | Interactive Research School for Health Affairs (IRSHA)                         |
| 7  | Dr. Shariq Ali Khan          | ➤ Role of Unani Medicine in the Management of Sartan (Cancer) (Prevention Oncology)                                       | Regional Research Institute of Unani Medicine                                  |
| 8  | Dr. Vinu Krishnan            | ➤ Comprehensive Cancer Treatment in Modern Homeopathic Way                                                                | Government Homeopathic Cancer Hospital, Wandoor, Kerala                        |
| 9  | Dr. K. L. Babu               | ➤ Palliative Care and Pain Management of Cancer in Homeopathy                                                             | Government Homeopathic Medical College, Kochikode                              |
| 10 | Prof. P. Redanna             | ➤ Multicentric Investigations on Brihatpanchamoola with Special Reference to Anti – Inflammatory Profiling of Young Roots | Department of Animal Sciences School of Life Sciences, University of Hyderabad |
| 11 | Dr. Jyothsna Rao             | ➤ Holistic Approach to Cancer                                                                                             | International Stemcell Services                                                |
| 12 | Prof. Dr. S. N. Ojha & group | ➤ Observations – Ayurveda                                                                                                 | Yashwant Ayurved College, Kolhapur                                             |
| 13 | Dr. Ranjit Nimbalkar         | ➤ AYUSH – Cancer                                                                                                          | Astang Ayurved College                                                         |
| 14 | Dr. Raghavendra Rao          | ➤ Suggestions with respect Yoga in Cancer                                                                                 | Healthcare Global Enterprises Ltd.                                             |
| 15 | Dr. Sunirmal Sarkar          | ➤ Hope of Homeopathy                                                                                                      | Practitioner                                                                   |
| 16 | Dr. Jayesh Sanghvi           | ➤ Scope & Success of Homeopathy in Cancer                                                                                 | Global Homeopathy Foundation                                                   |
| 17 | Dr. Shailesh Deshpande       | ➤ Clinical Experiences – Homeopathic Treatment                                                                            | Society for Enhancement and Research in Classical Homeopathy, Pune             |
| 18 | Dr. Vineeta Deshmukh & group | ➤ Diagnosis from Ayurvedic Perspective<br>➤ Area of Research in Cancer & Ayurved                                          | Integrated Cancer Treatment and Research Centre, Wagholi, Pune                 |
| 19 | Dr. Nishigandha Naik         | ➤ Piscean Model for Cancer                                                                                                | Haffkine Institute                                                             |

|    |                     |                                             |                                                                |
|----|---------------------|---------------------------------------------|----------------------------------------------------------------|
| 20 | Dr. Anil Sanganeria | ➤ Experiences and Suggestions of Oncologist | Integrated Cancer Treatment and Research Centre, Wagholi, Pune |
| 21 | Dr. Arvind Kulkarni | ➤ Experiences and Suggestions of Oncologist | Integrated Cancer Treatment and Research Centre, Wagholi, Pune |

As the free presentation session got extended till late evening the next day plan was changed to straight aim for suggestions for outcome. A modified template was developed overnight and followed at the morning session on the second day.

The participants were divided into 3 groups having equal representations from AYUSH systems and biomedical expertise of different types. The participants worked in groups to provide the suggestions for activities and modalities as per the newly made template. The template was followed for each of the Ayurveda, Yoga, Unani and Homoeopathy systems.

At the end a representative from each of the three group provided collectively derived suggestions with details on the template.

The combined outcome of these three groups has been provided herewith. [Appendix – III- A, B, C, D&E]

The consultative meet has been recorded for possible publication of the proceedings.

In the last session, aptly titled as ‘Road Ahead’ by **Shri Jitendra Sharma, Joint Secretary, Dr. Madhu of Arya Vaidya Sala, Kottakal** and **Dr. Ravi Mehrotra, Institute of Cytology & Preventive Oncology, Delhi** shared their institutional experiences. Need to be specific for claims of validation were stressed upon. Dr. Narendra Bhatt, convener of the meet gave an overview of the meet and provided with immediate activities that could be taken up by the participants. The meet confirmed high potential the AYUSH has to take on challenges in the treatment of cancer including drug development.

**Shri Jitendra Sharma, Joint Secretary, Ministry of AYUSH** complimented the participants and Dr. Bhatt for a productive meet. He expressed his satisfaction with the way the participants from diverse fields could come together to share and look for integrative interventions. He suggested that this beginning, though essentially for the forthcoming visit of USA experts shall continue to develop programs at national level. He assured support from Ministry of AYUSH to persuade further activities. He suggested that AYUSH can make big inroads only if it could take on challenges like cancer.

The meet concluded in a very positive note.

## VI. OUTCOME

**‘AYUSH’ RESEARCH POTENTIALS IN FOLLOWING AREAS WERE CONSIDERED.**

### **A. Drug / Product Development (based on AYUSH principles and practices) for Treatment of Cancers**

1. Medicinal plants used singly in cancer treatment and studies on its phyto-constituents or derived molecules
2. Medicinal plant combinations (formulations) used in cancer treatment and new formulation developments to address specific cancer conditions
3. AYUSH Dosage forms to treat cancer specific clinical conditions / situations
4. Development of Novel Formulations for Cancer treatment
5. Use Specific Therapeutic Approaches (Principles)\*
  - 5.1 Known Poisonous plants (Detoxified or Processed
  - 5.2 *Rasa Aushsadhis* (Formulations that use Hg, As,Au, Ag, Cu, S and such) in specially processed and detoxified form
  - 5.3 Animal products like Cow’s Urine or Venoms and such
  - 5.4 Use of Papaver or Cannabis based compounds in specific clinical needs
  - 5.5 Others

*\*[Note – These are highly recommended in cancer treatment due their quick effective and targeted therapeutic activities. The issue of toxicity could be addressed by right choices and development of standardization modalities of its processes]*

### **B. Understanding Cancer as in AYUSH Systems**

AYUSH systems are rich in clinical knowledge and system approaches similar to present day system biology approaches. These principles and experiences could be explored for following.

1. Clinical Perspectives, Disease Stages and Prognostics.
2. Disease Specific (Specific types of cancer) Biological Pathways
3. Causative Factors to correlate cause-effect and disease processes
4. Dynamic Prognostics

### **C. Prevention as per AYUSH Systems**

1. Early Diagnosis
2. Identifying Causative factors
3. Diet and Dietetic Factors & Lifestyle



#### D. AYUSH Treatment Modalities for Cancers

AYUSH practitioners shared wide range of experiences with presentation of many cases. It is considered appropriate to document and generate evidence of outcomes of such practices and claims.

These experiences were grouped and recommended to be documented in categories as follows.

1. Personalized Treatment (Case to case totalistic treatments)
2. Cancer Specific Treatment
3. Complementary treatments before, during or after conventional cancer treatments in the form of chemo-therapy, radiotherapy or surgery. These are -
  - a. Protection from Chemo-Toxicity
  - b. Protection from Radiotherapy
  - c. Post-Surgery Support
  - d. Immune Enhancement
4. Non-Recurrence Treatments
5. Dietetic Approach in Cancer Treatment (General and Specific Certain Types of Cancers)
6. Mind Body Interventions

#### E. Developing Database And Documentation Of Practices

1. **Textual** -AYUSH Texts are rich in basic and clinical knowledge and pharmacopoeia contents. It is suggested that a systematic review can contribute significantly to understand and develop treatment approaches in a logical manner.

Simple to execute time bound programs under able leadership and guidance could be developed that will provide comprehensive details. This will also provide specific collected information as follows.

- a. Medicinal Ingredient / Plant Database
  - b. Clinical Data Management
  - c. Research Information
  - d. Relevant Bio-Medical Information
2. **Documentation** -Information Technology BASED MODALITIES to generate database on AYUSH treatment modalities as practiced by **individual practitioners and institutes**. Such data then could be subjected to critical analyses to examine its potentials.

## **VII. RECOMMENDATIONS**

- 1. SPECIFIC LEADS AS EMERGED OUT OF THIS MEET BE CONSIDERED AT FORTHCOMING MEET WITH USA AUTHORITIES.**
- 2. THIS MEET BE FOLLOWED UP WITH SMALL GROUPS TO ENLIST HIGH POTENTIAL AREAS AND SUBJECTS IN A COLLECTIVE OUTCOME ORIENTED MANNER.**
- 3. DIFFERENT CRITERIA AS PER DIFFERENT ACTIVITIES BE DEVELOPED TO IDENTIFY AND PRIORITIZE AYUSH RESEARCH PROPOSALS WITH SPECIFIC END POINTS.**
- 4. THE ACTIVITY GROUPS SHALL DEVELOP RESEARCH PROPOSALS THAT COULD BE SUBMITTED TO MINISTRY OF AYUSH. EFFORTS BE MADE TO GIVE PRIORITY OR TO PROVIDE SPECIAL ENCOURAGEMENT.**
- 5. IT IS STRONGLY RECOMMENDED THAT THIS INITIATIVE BE CONTINUED FURTHER WITH SAME INTENSITY AND VIGOR. A NATIONAL TASK FORCE BE FORMED ON PRIORITY TO DEVELOP A 'NATIONAL PROGRAM FOR AYUSH IN CANCER' IN A TIME BOUND MANNER.**

## **VIII. ROAD AHEAD**

**It was decided that**

- An 'Executive Summary' be prepared on priority.**
  - Sub-groups of (1) AYUSH Systems and of (2) Specific Research Activities will be formed to consider priority activities including therapeutic interventions. These groups will strive to evolve integrative research and treatment modalities**
  - 'Network Programs' will be developed by identified experts and institutes.**
  - An E- group be formed for further interaction of the participants and the institutes to provide a platform for further interaction.**
  - Possibility of E – Magazine specific to 'Role of AYUSH in Cancer' to be considered.**
  - Ministry of AYUSH has assured support to consider these activities.**
- ~~~~~

## APPENDIX - I (A) LIST OF PARTICIPANTS

| Sr. | Name                      | Fac   | City       |
|-----|---------------------------|-------|------------|
| 1   | Babu K. L. Dr.            | Hom   | Kerala     |
| 2   | Balendu Prakash Dr.       | Ayu   | Deharadun  |
| 3   | Bhatt Narendra Dr.        | Ayu   | Mumbai     |
| 4   | Deshmukh Vineeta Vasant   | Ayu   | Pune       |
| 5   | Deshpande Manasi Dr.      | Ayu   | Pune       |
| 6   | Deshpande Shailesh R. Dr. | Hom   | Pune       |
| 7   | Devpujari Dr.             | Ayu   | Nagpur     |
| 8   | Dharmadhikari Vd.         | Ayu   | Pune       |
| 9   | Gadgil Dilip Vd.          | Ayu   | Pune       |
| 10  | Geetha Krishnan Dr.       | Ayu   | Gurgaon    |
| 11  | Godatwar Pawan Kumar      | Ayu   | Jaipur     |
| 12  | Gokhale Rajani Dr.        | Ayu   | Nashik     |
| 13  | Gupta S. N. Dr.           | Ayu   | Nadiad     |
| 14  | Khan Shariq Al Dr.        | Unani | Delhi      |
| 15  | Krishnan Vinu Dr.         | Hom   | Kerala     |
| 16  | Kulkarni Arvind Dr.       | Onco  | Pune       |
| 17  | Kulkarni Dhananjay Dr.    | Ayu   | Pune       |
| 18  | Kulkarni Shekhar Dr.      | Onco  | Pune       |
| 19  | Kozarekar Vandana Dr.     | Ayu   | Mumbai     |
| 20  | Ladda Dipak Dr.           | Patho | Pune       |
| 21  | Madhu K. M. Dr.           | Ayu   | Kerala     |
| 22  | Mandal Chitra Dr.         | Onco  | Kolkatta   |
| 23  | Mehrotra Ravi Dr.         | Onco  | Delhi      |
| 24  | Nagarathna R. Dr.         | Yoga  | Bangalore  |
| 25  | Naik Nishigandha Dr.      | Bio   | Mumbai     |
| 26  | Nevpurkar Santosh Dr.     | Ayu   | Aurangabad |
| 27  | Nimbalkar Ranjit Dr.      | Ayu   | Pune       |
| 28  | Ojha Satyendra Prof Dr.   | Ayu   | Kolhapur   |
| 29  | Padhye Subhash Dr.        | Chem  | Pune       |
| 30  | Patil Tushar Dr.          | Onco  | Pune       |
| 31  | Prasad B. S. Dr.          | Ayu   | Karnataka  |
| 32  | Prasad V. V. Dr.          | Ayu   | Nadiad     |

| Sr. | Name                  | Fac      | City      |
|-----|-----------------------|----------|-----------|
| 33  | Prasher Bhavana Dr.   | A+Geo    | Delhi     |
| 34  | Rao Jyotsna Dr.       | life sci | Bangalore |
| 35  | Rao Raghavendra Dr.   | Yoga     | Bangalore |
| 36  | Redanna P. Prof       | Chem     | Hyderabad |
| 37  | Reddy Govind Dr.      | Ayu      | Mumbai    |
| 38  | Samant Anant Dr.      | Ayu      | kolhapur  |
| 39  | Sanganeria Anil Dr.   | Onco     | Pune      |
| 40  | Sanghvi Jayesh V. Dr. | Hom      | Chennai   |
| 41  | Sarkar Sunirmal Dr.   | Hom      | Kolkatta  |
| 42  | Vaidya Umesh Dr.      | Ayu      | Pune      |
| 43  | Velankar Vinay Vd.    | Ayu      | Thane     |
| 44  | Waheed MA Dr.         | Unani    | Hyderabad |
| 45  | Sharma G. D. Dr.      | Bio      | Pune      |
| 46  | Moghe A. S. Dr.       | Bio      | Pune      |
| 47  | Shaikh S. A. Dr.      | Bio      | Pune      |
| 48  | Tupe R. S. Dr.        | Bio      | Pune      |
| 49  | Ghanekar Ruchika Kaul | Bio      | Pune      |
| 50  | Swati Kulkarni        | Ayu      | Pune      |
| 51  | Kumar Prabhash Dr.    | Onco     | Mumbai    |

### AYUSH

|    |                      |       |       |
|----|----------------------|-------|-------|
| 52 | Sharma Jitendra Shri |       | Delhi |
| 53 | Katoch D C Dr.       | Ayu   | Delhi |
| 54 | Rahman Rais -Ur Dr.  | Unani | Delhi |
| 55 | Radha N Dr.          | Hom   | Delhi |

### IASTAM Organising

|    |                       |       |        |
|----|-----------------------|-------|--------|
| d  | Bhatt Narendra Dr.    |       |        |
| d  | Deshpande Manasi Dr.  |       |        |
| d  | Kozarekar Vandana Dr. |       |        |
| 56 | MouryaNeelam Ms.      | Pharm | Mumbai |
| 57 | ValviAnupama Ms.      | Pharm | Mumbai |

**APPENDIX - I (B) LIST OF INSTITUTES**

| Sr. | Institutes                                                                                                                                                                 |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | AshtangAyyurved College                                                                                                                                                    |
| 2   | Barsi Cancer Hospital, Solapur                                                                                                                                             |
| 3   | Bharati Vidyapeeth University -<br>College of Ayurved<br>Integrative Research School for Health Care<br>Rajiv Gandhi Institute of Information Technology and Biotechnology |
| 4   | Central India Institute of Medical Sciences, Nagpur                                                                                                                        |
| 5   | Central Research Institute of Unani Medicine, Hyderabad                                                                                                                    |
| 6   | Chethana- Pain and Palliative Homeopathic Cancer Centre, Kerala                                                                                                            |
| 7   | CSIR - Ayurgenomics Unit –Trisutra                                                                                                                                         |
| 8   | CSIR- Indian Institute of Chemical Biology, Kolkata                                                                                                                        |
| 9   | Dr. HegdewarRugnalaya, Aurangabad                                                                                                                                          |
| 10  | Dr. J. J. Magdum Ayurved College and Hospital, Kolhapur                                                                                                                    |
| 11  | Global Homeopathy Foundation                                                                                                                                               |
| 12  | Govt. Homeopathic Medical College, Kozhikode, Kerala                                                                                                                       |
| 13  | Haffkine Institute                                                                                                                                                         |
| 14  | Healthcare Global Enterprises Ltd.                                                                                                                                         |
| 15  | Indian Association for the Study of Traditional Asian Medicine ( <i>IASTAM - India</i> )*                                                                                  |
| 16  | iCREST - The Stem Cell People                                                                                                                                              |
| 17  | Institute of Cytology and Preventive Oncology                                                                                                                              |
| 18  | Integrated Cancer Treatment and Research Centre                                                                                                                            |
| 19  | Interdisciplinary Science & Technology Research Academy, AbedaInamdar College                                                                                              |
| 20  | J. S. Ayurveda College, Nadiad                                                                                                                                             |
| 21  | K. M. Homeopathic College, Ahmednagar                                                                                                                                      |
| 22  | KLEU Shri BMK Ayurved Mahavidyalaya                                                                                                                                        |
| 23  | Medanta, Department of Integrative Medicine                                                                                                                                |
| 24  | National Institute of Ayurveda, Jaipur                                                                                                                                     |
| 25  | R. R. A. Podar Ayurveda Cancer Research Institute                                                                                                                          |
| 26  | School of Life Sciences, University of Hyderabad                                                                                                                           |
| 27  | Svyasa Yoga University, Bangalore                                                                                                                                          |
| 28  | Tata Memorial Hospital                                                                                                                                                     |
| 29  | Vaidya Chandra Prakash Cancer Research Foundation                                                                                                                          |
| 30  | Vaidyaratnam P.S. Variers's Arya Vaidya Shala Hospital                                                                                                                     |
| 31  | Yashwant Ayurved College, Kolhapur                                                                                                                                         |

\* Organized by

Appendix - II (A) Questionnaire

**A QUESTIONNAIRE TO COMPILE INFORMATION ABOUT ACTIVITIES  
IN THE AREA OF CANCER & AYUSH**

**For**  
**CONSULTATIVE MEET**  
**TO PRIORITIZE AYUSH RESEARCH ACTIVITIES**  
**IN THE FIELD OF CANCER**  
**FOR INTERNATIONAL COLLABORATION**  
**(2016)**

**An Initiative at Behest of Ministry of AYUSH, Government of India**

*To be organized by*



**Indian Association for the Study of  
Traditional Asian Medicine**

पारंपारिक आशियाई स्वास्थ्य परिषद - भारत

**IASTAM – India, C/o, Principal, Bharati Vidyapeeth Deemed University  
College of Ayurved, Pune -Satara Road, Dhakawadi, Pune 411043, India**

**Tel.: 020 - 2437 3955 / +91 989600 85980**

**Email: [iastam.india@gmail.com](mailto:iastam.india@gmail.com), [admin@iastamindia.org](mailto:admin@iastamindia.org) Website: [www.iastamindia.org](http://www.iastamindia.org)**

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Executive Summary –

**CONSULTATIVE MEET TO PRIORITIZE AYUSH RESEARCH ACTIVITIES IN THE FIELD OF CANCER FOR  
INTERNATIONAL COLLABORATION**

***Kindly note the following guidelines:***

- ❖ *This questionnaire is to collect primary information.*
- ❖ *The purpose of this exercise is to understand various AYUSH Approaches to Cancer treatment and learn from clinical or research experiences and consider its eligibility for further validation.*
- ❖ *Provide essential information only. Published data in the form of a scientific paper or article are welcome. Single case studies are also welcome.*
- ❖ *Please do not send individual testimonials of patients.*
- ❖ *Canvassing in any form is not desirable.*
- ❖ *Information about any specific treatment or an individual plant or drug are welcome.*
- ❖ *Please provide information in most eligible manner, use additional pages wherever necessary.*
- ❖ *Please tick ✓wherever applicable.*
- ❖ *Please feel free to attach any additional detail separately.*

***PLEASE NOTE:The Invitation For Participation For The Proposed Consultative Meet Will Be Extended After Primary Screening Of Data Made Available.***

***Please send the filled details to:***

**By E-mail: [drnsbhatt@gmail.com](mailto:drnsbhatt@gmail.com)Or**



**By post: IASTAM- India, C/o 15, First floor, Bachubhai building, J. Bhatankar Marg, (Elphinstone station road), Parel (East), Mumbai- 400 012**

**A QUESTIONNAIRE TO COMPILE INFORMATION ABOUT ACTIVITIES  
IN THE AREA OF CANCER AND AYUSH**

**I. Personal Details**

Name: .....

Qualifications:.....

Basic Faculty: Ayurveda  YogaUnani  Siddha

Conventional Medicine  Oncology her Specialty

Occupation: Practitioner  Clinician  Teacher  Researcher  Social Worker

Address:.....

Mobile No:.....:..... Telephone:.....

E- Mail: .....

Skills &Experience:.....

Institute / Affiliation, if any:.....

**II. Interest / Experience / Research in Cancer with AYUSH**

**A. Please provide details of your interest /experience /research in the area of Cancer and AYUSH with specific examples.**

1.....

2.....

.....  
3.....  
.....  
.....

**B. What is/ are your existing expertise/priority in the area of Cancer Research?**

*[You may mark more than one]*

- |                                                                  |                                                                       |
|------------------------------------------------------------------|-----------------------------------------------------------------------|
| Understanding Cancer <input type="checkbox"/>                    | Specific Diagnosis <input type="checkbox"/>                           |
| Specific Type of Cancer <input type="checkbox"/>                 | Specific Treatment <input type="checkbox"/>                           |
| Complimentary Treatment <input type="checkbox"/>                 | Combined Treatment <input type="checkbox"/>                           |
| Biological Research <input type="checkbox"/>                     | Genetic Research <input type="checkbox"/>                             |
| Personalized treatment Dietetic Support <input type="checkbox"/> |                                                                       |
| Drug Development <input type="checkbox"/>                        | Development of integrated Approach to cancer <input type="checkbox"/> |

Other, Please specify.....

**C. What area of research needs development- biology, prevention, diagnosis, treatment, molecule/drug development or drug delivery system?**

.....  
.....  
.....

**D. You are an AYUSH faculty what area in your view has the highest potential in cancer research/care OR if you representing a faculty other than AYUSH, what are your expectations from AYUSH in the area of cancer research?**

.....  
.....  
.....



**E. What are the challenges faced in the field of Cancer Research? Please enlist as you consider appropriate?**

1. ....  
.....  
.....
2. ....  
.....  
.....
3. ....  
.....  
.....

**F. Give three priority subject/s or area/s for research.**

1. ....  
.....
2. ....  
.....
3. ....  
.....  
.....

**III. Please provide following information.**

**A. Would you be interested in activities related to Cancer research? In what way?**

*Please mark specific interest only.*

Clinical  Biology  Pharmacology  Pharmaceutical  Toxicology

Any other, please specify.....

If yes, what facilities are available with you for the above specified area? *Enlist or write in few words.*

CLINIC: AYUSH  Modern Oncology

HOSPITAL: AYUSHM  ern Oncology

INSTITUTE:  LABORATORY:

Any other, Please Specify.....

**What kind of interest do you have to join research activity in the field of AYUSH for cancer?**

Academic  Research Product  IPR So

Any other: .....

**B. Are you ready to share all related information about your experience?**

Yes  No

Is there any information that you consider to be required to be protected for its IPR?

If yes, will you be ready to subject your information to a primary scrutiny under ‘confidentiality agreement’ and abide by its outcome? Yes  No

Are you inclined to have specific gain if included in the possible future project?

If so, in what way? .....

**C. Are you associated with or involved with any activity directly or indirectly with Institute or Industry that is involved with research that could be used for any commercial or IPR gains?**

Yes  No  If yes, please specify.....

## **APPENDIX - II (B) SUMMARY OF RESPONSES TO QUESTIONNAIRE ISSUES**

1. Toxicities and resistance of chemotherapy
2. Assessment of efficacy of Ayurvedic treatments
3. Variation in responses in treatment (Individualised treatment)
4. Prevention of recurrence
5. Cancer and Ayurvedic diagnosis
6. Identification of therapeutic agent
7. Awareness
8. Early diagnosis
9. Apathy of Indian population towards clinical research
10. Different understanding of cancer (Different perspective) & Causative factors- Diet, Lifestyle, Genetic, Environmental exposure and identification of the same.
11. Cost burden for treatment
12. Lack of database for folk plants
13. Lack of specificity of chemotherapeutic agents towards cancerous cells and identification of synergistic combination of anticancer molecules

## **APPROACHES**

1. Quality of life
2. Non-recurrence
3. AYUSH, mainstream treatment approach
4. Music therapy and Yoga
5. *Panchakarma*/detoxification therapy
6. World structure clinical trial to portray the potentials of Ayurvedic treatment- CRF, Project proposals
7. *Rasayana*
8. Local treatment
9. Prevention- *Garbhasamskara, bijadoshashuddhi*
10. Palliative treatment
11. Cell line studies
12. Diet, nutrition comprehensive treatment
13. N=1 case studies
14. Ayurvedic surgical care, pre and post
15. Complementary treatment
16. Preventive metastasis
17. Psychological assessment through Ayurveda
18. Potentised microdoses of chemomedicine
19. Multi-target therapy
20. *Panchabhoutikchikitsa*
21. Metallic and mineral formulations
22. Immunotherapy

| Treatment                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                    |                                                       |                                           | Prevention Non-recurrence                                                                                                | Understanding-Biological Process                                                                                                                                                                                                                                                                                                                                                                                                     | Diagnosis/Prognostics                                                                            | Causative Factor                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Drug/Product                                                                                                                                                                                                                                                    | Disease Specific Drugs                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Complementary to Chemotherapy                                                                                                                                                                                                                                                                                                                                                      | Complementary to Radiotherapy                         | Complementary to Surgery                  |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                  |                                                                                                         |
| <b>Churna</b><br>Chitraka<br>Haridra<br>Bhallatak<br>Pippali<br><br><b>Bhasma</b><br>Abhrak<br>Hirak<br>Tamra<br>Swarna<br>Vaikrant<br><br><b>Avaleha</b><br>Amalaki<br>rasayana<br><br><b>Other</b><br>Panchgavya<br>Rasayana<br>churna<br>Cow milk<br>&ghrita | <b>Tumour reduction</b><br>1.Veronika<br>cinerea (whole plant ) decoction<br>or<br>avaleha+Gomutra<br>2.Guggulu<br>TiktaKashay<br>(AshtangHriday)<br><br><b>Breast &amp; ProstateCA</b><br>Varunadi<br>Kashaya<br><br><b>Acute leukemia</b><br>BubhukshitParad<br>+ 100 times<br>GandhakJaran +<br>RajatBhasma+Jadvar+Javahar<br>MohraPishti+<br>ArkaGulab+<br>Gajvan+<br>Latakasturi<br>Colon<br>CancerSwarnaParapati<br>Non-Hodgkin<br>LymphomaLaghu<br>Malini Vasant | <b>Reduction of PSA in Prostate cancer</b><br>Karanjpatrachurna<br><br><b>Side effects of chemo in Leukemia</b><br>Thespesiapopulnea<br>Adjuvant therapy<br>Kamdudha rasa<br><br>Churna<br>Amalaki, Ashwagandha<br>Bala ,Brahmi<br>Guduchi,KapiKacchu<br>Madiphalarasayana<br>Punarnava,Shatavari<br>Triphala,Yashtimadhu<br>Sukumarghrita<br><i>Shodhana</i><br><i>Amapachana</i> |                                                       | Lekhan drugs<br><br>Healthy wound healing | Diet<br>Lifestyle correction<br>Organic food<br>Periodic Panchkarma<br><br>Dhatu specific rasayana<br><br>GarbhaSamskara | ~Establishment of samprapti&samprapti shatkala to each variety & stage<br><br>~Interpretation of Ayurvedic principles in modern biological terms.<br><br>~T cell response<br>~Pre radical superoxide<br><br>~Oxidative stress-Tissue analysis & chemical analysis<br><br>~Pharmacogenesis<br><br>~Improvement in DNA repair genes<br><br>~Modification in immune system & immune response<br><br>~Modification in genetic expression | ~ Sadhyaasadhya<br>ascertainment each variety & stage<br><br>~ Nidanpanchaka,<br>Trividhpariksha | ~Survey<br><br>~Study Habits-Tobacco. Lifestyle & Diet<br><br>~Screening of causative factors as per Ay |
|                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Deepan,<br>Snehan                                                                                                                                                                                                                                                                                                                                                                  | Wound healing,<br>BalyaBruhaniya<br><br>MedhyaRasayan |                                           |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                  |                                                                                                         |

The following proposal as given by one of the participating expert has been reproduced



**APPENDIX III (B) CANCER RESEARCH POSSIBILITIES: YOGA**

| <b>Complementary to chemotherapy &amp; Radiotherapy</b>                                                                                            | <b>Complementary To Surgery</b>                                                                                                                             | <b>Yoga modules</b>                        | <b>Prevention of non-recurrence</b>   | <b>Understanding biologic process</b>                                                                           | <b>Parameters to be applied</b>                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chemotherapy induced nausea and emesis: Yoga vs Jacobsons relaxation in management of CINV : A mechanism of action study                           | Management of myofascial pain in breast cancer patients undergoing mastectomy or BCS: A RCT of yoga vs physical therapy                                     | Specific for nausea and vomiting           | Prevention of recurrence/ progression | Electrogastrogram, Stress responses<br>Severity of nausea and emesis                                            | CINV Questionnaires<br>FACIT Nausea/vomiting<br>Heart rate variability and Cardiac autonomic function                                                                         |
| Fatigue : yoga vs energy conservation therapy in management of fatigue in breast cancer patients undergoing adjuvant chemotherapy and radiotherapy | Management of post-operative outcomes such as wound healing, stay, symptom distress using yoga intervention : A RCT on Yoga vs structured Physical Activity | Specific for fatigue                       |                                       | TH1/TH2 Cytokines<br>Facit Fatigue<br>FSI<br>QOL<br>Fatigue assessed upto 1 year post cancer directed treatment | IL1,IL6,TNF Alpha,<br>Facit Fatigue<br>FSI                                                                                                                                    |
| Management of Chemotherapy/ Radiotherapy induced cognitive impairment                                                                              |                                                                                                                                                             | Specific for improving cognitive functions |                                       | Cognitive function                                                                                              | Neuropsychology test battery<br>FMRI using Cognitive tasks ,<br>PET                                                                                                           |
| Management of Cancer related Pain using Yoga interventions : development and validation of a module                                                |                                                                                                                                                             | Specific for managing pain                 |                                       | Pain scales / Pain Algometer,<br>Thermography,<br>Inflammatory Cytokines                                        | Pvas/ Distress Thermometer<br>Inflammatory Cytokines<br>Pain Algometer<br>Thermography Imaging                                                                                |
| Management of sleep disturbances in cancer patients using yoga : a mechanism of action study                                                       |                                                                                                                                                             | Specific for improving sleep               |                                       | HPA Axes Regulation<br>Sleep Quality                                                                            | GH/ACTH/DHEAs/Diurnal cortisol<br>Pitts Burg Sleep Quality Index, Polysomnography                                                                                             |
| Improving Qol outcomes and survival in non-metastatic cancer patients using Yoga : A RCT                                                           |                                                                                                                                                             | For cancer patients                        |                                       | Disease free survival/<br>Immune out comes<br>Mood states, QOL<br>Genomics<br>Weight management                 | Disease free survival/ Tumor markers/ PETCT Imaging/<br>NKCell activity,<br>Cortisol rhym/<br>Mood states , T Cell activity<br>QOL, Genomics,DNA Repair, Body fat composition |

**APPENDIX III (C) CANCER RESEARCH POSSIBILITIES: UNANI**



| Treatment                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                           |                                                                                                                                                                | Prevention Non-recurrence                                                  | Understanding-Biological Process                                                                                                                                                                                                                     | Diagnosis/Prognostics                                                          | Causative Factor                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------|
| Drug/Product                                                                                                                                                                                                                                                                                                                                                       | Complementary to Chemotherapy                                                                                                                                                                                                                                                                                                                      | Complementary to Radiotherapy                                                                                                                             | Complementary to Surgery                                                                                                                                       |                                                                            |                                                                                                                                                                                                                                                      |                                                                                |                                                      |
| As a mainstream in cancer management<br>As an adjuvant<br>Two groups:<br>1.Complementary+ conventional<br>2.Management of cancer therapy<br><br>ZaitoonMakoe<br>Aftimoon<br>Kasni, Kalonji<br>Ghariqoon, Katar<br>Bisfaij,Aspghol<br>Daroonaj-Aqrabi<br>Bozidan, Halena,<br>Sadabahar,<br>Zinjabeel, Waj-E-Turki,<br>Khoolanjan,Rumman, Qust-E-Talkh<br>ZaharMohra | To minimize the adverse effects of chemo<br>To increase the bioavailability<br>To overcome resistance<br>MM therapy, Hydration therapy,<br>Tonics<br>Two groups:<br>1.Complementary+ conventional<br>2.Management of cancer therapy<br><br>Aspghol<br>Unnab<br>Chiraita<br>Makoe<br>Kasni<br>Shahatra<br>Katan<br>ZardChob<br>Rasaut, Bel<br>Giloe | To minimize the adverse effects of radiotherapy<br><br>Sibr<br>Aspghol<br>Behidana<br>Khayarain<br>Kharpaza<br>Mulethi<br>Bel<br>Khurfa<br>Kadoo<br>Kahoo | To improve the healing process<br>To arrest the post-surgery metastasis<br><br>Amla<br>Unnab<br>Asgandh<br>ZaharMohra<br>Giloe<br>Chirayta<br>Neem<br>Shahatra | Lifestyle correction<br>Organic food<br>Identification of high risk people | T cell response<br>Pre radical superoxide<br>Oxidative stress-<br>Tissue analysis & chemical analysis<br>Pharmacogenesis<br>Improvement in DNA repair genes<br>Modification in immune system & immune response<br>Modification in genetic expression | Evidence based diagnosis<br>To improve the prognosis by interventional therapy | Survey Study<br>Habits-<br>Tobacco<br>Lifestyle Diet |

**APPENDIX III (D) CANCER RESEARCH POSSIBILITIES: HOMEOPATHY**

| Drug/Product                                                                                                                                                                                                                                      | Disease specific drugs | Treatment                                                                                                                                                                                                             |                                                                                                                                                                                              |                                                                                                                                                    | Prevention Non-recurrence                                                                                                                           | Understanding-Biological Process                                                                                                                                                                                                                                                                                    | Diagnosis/Prognostics                                                                                                                                                                                                                  | Causative Factor                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                   |                        | Complementary to Chemotherapy                                                                                                                                                                                         | Complementary to Radiotherapy                                                                                                                                                                | Complementary to Surgery                                                                                                                           |                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                        |                                                                                                                                              |
| Arsalle<br>Silica<br>Cholestrium<br>Carcinoin<br>Terminalia<br>chebula<br>Hydrastis<br>Hydrocotyle<br>Nux vomica<br>Opium<br>Camphor<br>Carboveg<br>Heparsulph<br><br>-Calceria Carb 30<br>- Arsenic<br>Album 30<br><br>Thuja 300<br>-Ruja g 30,6 |                        | ~Regain homeostasis<br>~Alopecia<br>~Nail & skin change<br>~Nausea vomiting<br>~Symptomatic treatment,<br>~Quality of life<br><br>-Phosphorus 200<br>-Cadmium Sulf 30<br>-Arsenicum<br><br>-X ray 30<br>-Cisplatin 30 | ~Burn<br>~Ulcer<br>~Numbness<br>~Skin changes<br>~Get back the vitality<br>~Post radiation bleeding<br><br>-Phosphorus 200<br>-Cadmium Sulf 30<br>-Arsenicum<br><br>-Radium bromide 30 & 200 | ~Avoid suppuration, pus formation, fibrosis, tissue oedema<br><br>Pre:<br>-Arnica<br><br>Post:<br>Staphysagria<br>-Aeselle acid<br>-Strontium Carl | ~Recurrence after surgery like Glioma, Breast, Ovarian<br><br>~Lifestyle correction<br><br>~Organic food<br><br>~Identification of high risk people | ~Cell line studies<br>~In vitro<br>~In vivo<br><br>~Pre radical superoxide<br><br>~Oxidative stress-<br><br>~Tissue analysis & chemical analysis<br><br>~Pharmacogenesis<br><br>~Improvement in DNA repair genes<br><br>~Modification in immune system & immune response<br><br>~Modification in genetic expression | ~Psora<br>Sycosis<br>Syphilis<br><br>~Depends on the response of the patient<br><br>~Idiopathic prolonged alteration in physiological process<br><br>~Not responding to any kind of treatment<br><br>~Abnormal behaviour of reactivity | ~Survey<br><br>~Study Habits-Tobacco<br><br>~Lifestyle<br><br>~Diet<br><br>~In addition to the general Homoeological like h/o trauma & grief |

**APPENDIX III (E) CANCER RESEARCH POSSIBILITIES: AYUSH**

**Research Modalities, Clinical- Evidence & Validation, Requisites**

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Research modalities</b>                | <p>System biology markers<br/> Cancer Biomarker<br/> 3-D culture cell based protocols to validate drug<br/> Inflammatory parameters &amp; cancer<br/> - in-vivo &amp; in-vitro<br/> - isolated enzyme system<br/> Immune Parameters<br/> -MCR Th1/ Th2 Profile<br/> Clinical input including molecular &amp; genetic.<br/> Clinical research<br/> Biomedical research<br/> Drug Interaction Studies<br/> Standardization<br/> All conventional parameters added with ayurvedic karyaphala</p> |
| <b>Clinical-Evidence &amp; Validation</b> | <p>Assessment of rasayana drugs- specific stem cell<br/> Samprapti or sadhyaasadyata<br/> Stratification of healthy &amp; diseased population based on<br/> Ayurveda(Prakriti) and objective parameters for integration in preventive<br/> prognosis assessment &amp; drug responsive studies<br/> Clinical validation<br/> Specific module to be designed specific to type of cancer, stage, treatment<br/> Clinical Trials<br/> Validation of treatment in terms of integrative system</p>  |
| <b>Requisites</b>                         | <p>Cancer registry<br/> Database<br/> Networking<br/> Documentation<br/> Man power<br/> Good follow up<br/> Statistician<br/> Preventive programme in specific groups like smoker, coal mine worker,<br/> nuclear, radiation exposed worker, HIV group etc.<br/> Protocol preparation</p>                                                                                                                                                                                                     |