**The Canadian Prostate Cancer Biomarker Network (CPCBN)**

We would like to thank you for your interest in participating in the project by proposing one or more biomarkers of interest in prostate cancer. The CPCBN is a program that regroups several researchers from four different Canadian provinces. The main objective of the CPCBN is to address important issues dealing with prostate cancer diagnosis and management. The CPCBN has assembled a cohort of 1500 radical prostatectomy specimens arrayed on tissue microarray (TMA) (1-2 normal cores and 2-4 tumor cores per patient). In addition, two different cohorts of 250 biopsy specimens were also assembled from an intermediate-risk group of patients treated by radiotherapy and from low-risk patients followed by active surveillance. All these patients’ specimens are associated with diagnosis, treatment and clinical outcome data.

The project has 2 specific goals:

1. To develop a multi-parametric test on prostate biopsy to help stratify patients with apparently low-stage/low risk disease that will not progress and could be safely put on a surveillance protocol and avoid the risks of therapy from those whose disease will evolve and require active treatment.

2. To define a set of prognostic markers on radical prostatectomy specimens or biopsies from radiotherapy treated patients that will add to the currently used clinical and pathological parameters, to identify patients at high-risk of cancer recurrence and or progression that may benefit from adjuvant or neo-adjuvant therapies.

Data from both approaches will be combined within nomograms, along with age, comorbidity profile as well as clinical and pathological characteristics, to more accurately risk stratify the host-adjusted, individual risk-characteristics of each prostate cancer.

Please be advised that the CPCBN is a validation rather then a discovery platform. Thus it is primordial that the biomarker you are about to propose has preliminary data to its potential usefulness in prostate cancer management. Indeed, your proposal will be reviewed by the CPCBN-Study Committee who will, according to specific criteria, decide if your proposal is to be accepted or not. Thus, it will be important for you to provide the study committee with enough details to assure proper evaluation of your proposal. In addition, due to the heterogeneous nature of prostate cancer and TMA design, we would request that a pathologist or a fellow in pathology participate in the scoring. Indeed, as specific normal and tumor cores are present on the TMA it will be important to evaluate the specific zone and if a modification of the definition of the core is performed (normal/PIN/tumor), the CPCBN should be notified.

**Flow chart of your proposal**

1. Submission of the proposal along with required documents and images by email to Veronique Ouellet, the project manager of the CPCBN: tfri.cpcbn@gmail.com.
2. Evaluation by the study committee.
3. For approved project, accession to the optimisation-TMA
4. Evaluation of the staining by a professional having received the approval of the study committee.
5. Accession to the test-TMA of 250 patients.
6. Evaluation of the results (statistical analyses) by the study committee. You will be asked to submit the scoring datasheet and associated TMA images (whole TMA scan) to the CPCBN. If your biomarker does not meet criteria, the data may be used, in the future, in multivariate analyses. If your biomarker demonstrates usefulness, accession to the remaining samples will be possible
7. Accession (or not) to the remaining 1250 patients of the RP cohort.
8. **You will be asked to submit the scoring datasheet and associated TMA images (whole TMA scan) to the CPCBN**
9. Evaluation of the results (statistical analyses) by the study committee

Should you have any questions/comments please contact the project manager

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|  |  |
| --- | --- |
| **Biomarker(s) ID  (short name)** If you are performing a multiplex assay, please state the name of all biomarkers evaluated on the same section)**:** |  |

|  |  |
| --- | --- |
| **Study Title** |  |

**1- CONTACT INFORMATION**

**a) Principal Investigator’s contact information including complete name, address and email**

## b) Resource person’s (contact person) contact information including complete name, address and email Same as PI

## c) Shipping address as it should appear on the Fedex package

## d) Co-Investigators(s) Please indicate complete name and affiliation

## 2- DESCRIPTION OF PRELIMINARY DATA

## a) Brief description of the biomarker: function in normal and cancer context / Pathways involved / Partners. Were these partners/pathway members known in PC? Will you validate them on the CPCBN cohort?

## b) Size and specification of the cohort used for preliminary data (ex. number of patients, radical prostatectomy, TURP, high/low risk cohort, pre/post treatments, etc.)

## c) Experimental approach (summarize the technique used and specificity of the methods used)

## d) Scoring technique used for IHC/IF (see appendix A for description)

## e) Describe the scoring technique used for FISH (control to normal, cut-off, etc.)

## f) Criteria used for scoring (cytoplasmic, nuclear, cut-off, scoring algorithm/software used or not – Please specify and provide an image representative of the scoring)

## g) What does the biomarker predict: latent vs aggressive, disease progression, recurrence, death, and/or metastases?

## h) Results (including the statistical analyses performed and results)

## i) Assay performance (reproducibility, sensitivity and specificity)

**3- PROOF OF CONCEPTS AND FEASIBILITY OF THE STUDY**

**a) Assay description**

|  |  |  |  |
| --- | --- | --- | --- |
| Name of the biomarker | Assay performed on | | |
| FFPE | TMA | Automated system |
|  | Yes No | Yes No | Yes No |
|  | Yes No | Yes No | Yes No |
|  | Yes No | Yes No | Yes No |
|  | Yes No | Yes No | Yes No |
|  | Yes No | Yes No | Yes No |

## \*Please note that in a translational point of view, the CPCBN required the assay to be performed on an automated strainer

## b) Biomarker tested in multiplex (ex. multiple protein/genes tested at the same time)

Yes, Please specify which biomarkers were performed together

No

## c) Specification of the antibody(ies) used

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Name of the biomarker | Antibody | | | | |
| Commercially available | Monoclonal | Host Species | Specificity tested\* | Digital image analysis |
|  | Yes No | Yes No |  | Yes No | Yes No |
|  | Yes No | Yes No |  | Yes No | Yes No |
|  | Yes No | Yes No |  | Yes No | Yes No |
|  | Yes No | Yes No |  | Yes No | Yes No |
|  | Yes No | Yes No |  | Yes No | Yes No |

## \*Control images are requested for evaluation by the CPCBN Study Committee

## d) A pathologist or a fellow in pathology is available to perform scoring of the TMAs?

Yes  No

## e) A statistician is available to perform the statistical analyses?

Yes  No

## 4-ADDITIONNAL INFORMATION

## a) Funding from another institution to support the study

|  |
| --- |
| Funds not available for this study at the present time  Study has been submitted for funding. Organization:  Study is funded or funds are available for this study from another source.  Organization: |

## b) Budget if no funding available from another institution to support the study (for reagents, compensation and service). Please specify budget for test-cohort (n=250 patients) and whole cohort (n=1250 patients). Maximum of $10,000 in total.

## c) Timeline

## d) Ethical committee approval

Approval received

Project is under review

Project is not yet submitted

## e) Intellectual Property protection process

Not patentable

Not yet done

In preparation

Pending / provisional

Accepted Patent number :

## f) Industry partnership

This proposal is performed in association with an industrial partner

Yes  No

## 5.0 Security and confidentiality

|  |  |
| --- | --- |
| Proposed electronic measures for clinical data safety: (ex: Are computers protected by passwords? Who accesses them) |  |
| Will tissue and/or data treatment and analysis be carried out by outsourced personnel? If yes, please explain |  |

A Material Transfer Agreement (MTA) is presently being developed for the TFRI-CPCBN project. I understand that my application may be financed, and I will receive samples, only after this MTA has been approved and signed by all concerned parties. I also understand that the MTA defines the requirement for me to deposit the results and data generated from my experiments with the CPCBN resources into the CPCBN repository, and I agree to these conditions.

|  |  |  |  |
| --- | --- | --- | --- |
| Signature: |  | Date: |  |

**Application checklist**

Completed application form.

IHC/IF images.

-Whole TMA scan or high quality images of low and high magnification.

-Note that you will need to provide a slide scan for the other steps of the process.

-Please email [ouelletv@gmail.com](mailto:tfri.cpcbn@gmail.com) to receive a Dropbox invitation.

Images of the staining/hybridization along with their associated scoring.

Positive and negative controls supporting the specificity of detection of your biomarkers (western blot and/or staining).

Budget description if needed.

Antibody datasheet or information regarding the non-commercial antibody.

Manuscript or paper demonstrating the results.

REB approval if available, the CPCBN will request your approval prior to send the test-TMA

Principal investigator cv (short version is sufficient).

Award letter (if applicable).

**Appendix A**

**SCORING TECHNIQUE DESCRIPTION**

|  |
| --- |
|  |

1. **BINARY**. A two-point scale. This is defined as either absent staining or staining in a sufficient number of cells so that you are convinced that at least some of the tumor cells express the antigen.
2. **4 POINT SCALE**. Assigning a value on a four-point scale to each immunostain. Descriptively, 0 represents no staining by any tumor cells, 1 represents a faint or focal, questionably present stain, 2 represents a stain of convincing intensity in a minority of cells and 3 a stain of convincing intensity in a majority of cells.
3. **COMPOSITIONAL** Estimation of the percentage of cells (expressed as increments of 5 to 25%) of cells expressing the antigen at each of three levels of reaction product - no expression, faint/equivocal expression, and intense. Methods for obtaining a single number for analysis
4. **CATEGORICAL COMPOSITIONAL** (CC) Expression on a four-point scale of 0 to 3, where 0 equals no expression, 1 equals < 5% of the cells express the antigen, 2 equals 5 to 20% of the cells, 3 represents 20 to 100% of cells.

Kindly provided by the Vancouver Prostate Centre