Supplementary Figure Legends

Supplementary Figure 1: Representation of the BcCluster database architecture (schema).



**Supplementary Figure S1. BcCluster architecture**. The figure describes the structure (schema) of the BcCluster database. Tables hold entities that store molecular feature information within the database. Each table contains a unique id, represented by a specific constrain PK that enforces entity integrity and uniqueness of the table. Two tables are linked to one another with FK. Relationships between tables are denoted by one-to-one (1.1), one-to-many (1:n) and many-to-many (m:n). The schema was generated by Dia 0.97

Supplementary Figure 2: Representation of the Ruby on Rails framework used in creating the BcCluster web query interface.



**Supplementary Figure S2. BcCluster framework (Database and software application)**. BcCluster is a web application developed using the Ruby programming language (version 1.9.3) and the Rails (version 4.1.5) web framework (http://rubyonrails.org/). The framework is based on the architecture pattern of Model-View-Controller (MVC). The database is generated using the MySQL guidelines (http://www.mysql.com/) and follows the database schema in Figure S1. The database allows to query and store molecular features, protein interactions and pathways relative to muscle invasive bladder carcinoma. The BcCluster application functions on the developmental and the production server. The developmental server is used for all on-going changes, updates and validations, while the production is a stable server that contains the validated data and is available for users to query (http://bccluster.org/).

Supplementary Table Legends

Supplementary Table 1: List of all references used in development of the muscle invasive BC interactome and BcCluster database. Provided is a list of 112 unique MedLine references with the title and author details.

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| Table S1. List of 112 publications used in retreiving molecules relative to muscle invasive bladder cancer. The title, reference and authors are listed. Information on the use of neoadjuvant chemotherapy is also provided.  |  |  |   | (N/A not available) |  |
| **Title** | **Reference** | **Author** | **MedLine ID** | **neoadj chemo for patients undergoing cystectomy** |  |
| Molecular pathogenesis and diagnostics of bladder cancer. | Annu Rev Pathol. 2009;4:251-85. | Mitra AP et.al | 18840072 | N/A |  |
| p53 expression in patients with advanced urothelial cancer of the urinary bladder. | BJU Int. 2010 Feb;105(4):489-95. | Shariat SF et.al | 19659466 | No |  |
| p53 and RB expression predict progression in T1 bladder cancer. | Clin Cancer Res. 1998 Apr;4(4):829-34. | Grossman HB et.al | 9563875 | N/A |  |
| Elevated and absent pRb expression is associated with bladder cancer progression and has cooperative effects with p53. | Cancer Res. 1998 Mar 15;58(6):1090-4. | Cote RJ et.al | 9515785 | N/A |  |
| Combined effects of p53, p21, and pRb expression in the progression of bladder transitional cell carcinoma. | J Clin Oncol. 2004 Mar 15;22(6):1007-13. Epub 2004 Feb 23. | Chatterjee SJ et.al | 14981105 | no |  |
| Use of combined apoptosis biomarkers for prediction of bladder cancer recurrence and mortality after radical cystectomy. | Lancet Oncol. 2007 Feb;8(2):128-36. | Karam JA et.al | 17267327 | yes (16/226) |  |
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| Distinctive expression pattern of ErbB family receptors signifies an aggressive variant of bladder cancer. | J Urol. 2008 Jan;179(1):353-8. Epub 2007 Nov 19. | Kassouf W et.al | 18006009 | N/A |  |
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