

## Key

### mutation

- deletion loss of genetic material
- DR down regulation; decrease mRNA transcripts
- insertion gain of genetic material (eg duplication, amplification, transposition)
- UR up regulation; increase mRNA transcripts
- AE altered expression (not stated whether up or down)
- LOH loss of heterogeneity
- OE over expression related to experimental factors

### Grade

- TNM
- GS; gleason score
- GG; gleason grade
- BPH; benign prostatic hyperplasia
- NORM; normal prostate tissue
- HR; hormonal refractory prostate
- PIN; prostate neoplasm
- Prim; primary
- Recur; recurrent
- Mets; metastases
- Local; localised prostate tumor
- Cell Lines: PC3, DU145, LNCaP
- TURP;trans urethral prostate chips

### Technique

- CGH; comparative genomic hybridisation
- FISH; fluorescent *in situ* hybridisation
- GC; gene chips, expression microarrays
- TMA; tissue microarrays
- IH; immunohistochemistry
- WB; western blot
- SB; southern blot
- NB; norther blot
- PCR; polymerase chain reaction
- RT-PCR; reverse transcriptase PCR
- MSI; microsatellite instability
- MSA: microsatellite amplification

| Loci                | mutation  | possible gene of interest  | possible role in Prostate cancer | Grade                  | Technique  | %       | ref |
|---------------------|-----------|--|----------------------------------|------------------------|------------|---------|-----|
| <b>Chromosome 1</b> |           |  |                                  |                        |            |         |     |
| 1p                  | deletion  |  |                                  | T1-4,Nx,Mx,0,1 vs norm | CGH & FISH | 54      | 7   |
| 1p13                |           | KREV-1, ras related gene   | Putative Tumor Suppressor Gene   |                        |            |         | 4   |
| 1p13.2              | DR        | GSTM3( glutathione transferase M3)                                   |                                  | GG4/5, BPH,            | GC         | 100     | 8   |
| 1p13.3              | AE        | RAP1A ( RAS oncogene family).  |                                  | GS5-10, BPH            | GC         |         | 11  |
|                     | AE        | GSTM1 (glutathione S-transferase M1)                                 |                                  | GS5-10, BPH,           | GC         |         | 11  |
| 1p31                | deletion  |  |                                  | T1-4,Nx,Mx,0,1 vs norm | CGH & FISH | Minimal | 7   |
| 1p34.3              | UR        | MACMARCKS: macrophage myristoylated alanine-rich C kinase substrate. |                                  | GG4/5, BPH,            | GC         | 100     | 8   |
|                     | UR        | MACMARCKS  |                                  | GS5-9, norm            | GC         |         | 12  |
| 1p34.1              | UR        | TSPAN1; tetraspan 1  |                                  |                        |            |         |     |
| 1p35                | AE        | Splicing factor, arginine/serine rich 4 (?)                          |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1p35.2-p36.1        | AE        | Gardner-Rasheed feline sarcoma viral (v-fgr) homolog                 | oncogene                         | GS5-10, BPH            | GC         |         | 11  |
| 1p36-pter           | deletion  | Contains p53-related putative neuroblastoma TSG                      |                                  | T1-4,Nx,Mx,0,1 vs norm | CGH & FISH | Minimal | 7   |
| 1p36.1-35           | AE        | Solute carrier family 9 (sodium hydrogen exchanger), isoform 1       |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1p36.1              | AE        | Elastase 3, pancreatic (protease E)                                  |                                  | GS5-10, BPH            | GC         |         | 11  |
|                     | AE        | ECE1 endothelin converting enzyme 1                                  |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1p36.2              | DR        | SLC2A5 (solute carrier family 2, member 5)                           |                                  | GG4/5, BPH,            | GC         | 100     | 8   |
|                     | AE        | VAM3 (vesicle-associated membrane protein 3 (cellubrevin)            |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1p36.3              | LOH       | PKCz very distal;  |                                  |                        | FISH       |         | 4   |
|                     | AE        | CDC10 (cell division cycle 10, homolog).                             |                                  | GS5-10, BPH,           | GC         |         | 11  |
|                     | AE        | Rho guanine exchange factor 16                                       | Putative neuroblastoma protein,  | GS5-10, BPH            | GC         |         | 11  |
|                     | AE        | KIAA0720   |                                  | GS5-10, BPH,           | GC         |         | 11  |
| 1q                  | insertion |  |                                  | GS5-10                 | CGH        | 16      | 1   |
| 1q21                | AE        | Thrombospondin   |                                  | GS5-10, BPH,           | GC         | (2/15)  | 11  |
|                     | AE        | 3Aryl hydrocarbon receptor nuclear translocator                      |                                  | GS5-10, BPH,           | GC         |         | 11  |
|                     | insertion |  | possible oncogene                | GS5-10                 | CGH        |         | 1   |
|                     | insertion |  |                                  | GS5-10                 | CGH        |         | 1   |
| 1q21.3              | deletion  | nm-23 H1 antioncogene  |                                  | GS 8-10, stage D       | IH         |         | 23  |
| 1q22                | AE        | Phosphoprotein enriched in astrocytes 15                             |                                  | GS5-10, BPH            | GC         |         | 11  |
|                     | AE        | Ric (Drosophilla)-like expressed in many tissues                     |                                  | GS5-10, BPH            | GC         |         | 11  |
|                     | AE        | Coatomer protein complex, a, (?)                                     |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1q24                | AE        | Quiescin Q6  |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1q25                |           | RNASEL: 2'-5'-oligoadenylate (2-5A) dependent RN ase L               | Proposed Tumor Suppressor Gene   |                        |            | 9, 53   |     |
|                     | insertion |  |                                  | GS5-10                 | CGH        | (1/15)  | 1   |
| 1q25.1-q32.3        | AE        | Ladinin1; LAD1, 120kDa linear IgA bullous dermatosis antigen         |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1q25-q32            | insertion |  |                                  | T1-4,Nx,Mx,0,1 v norm  | CGH & FISH |         | 7   |
| 1q31-q32            | AE        | Protein tyrosine phosphatase, receptor type C                        |                                  | GS5-10, BPH            | GC         |         | 11  |
| 1q43                | AE        | Nidogen (enactin; NID)   |                                  | GS5-10, BPH            | GC         |         | 11  |

**chromosome 2**

|                     |           |  |                                     |                              |                |        |    |
|---------------------|-----------|--|-------------------------------------|------------------------------|----------------|--------|----|
| 2p13                | DR        | ANNXA 4, annexin 4                                       |                                     | GS6-9, BPH, HR               | GC             |        | 6  |
| 2p15.2              | AE        | Catenin (cadherin-associated protein), delta 2           |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 2p21                | LOH       | PKCe   |                                     |                              | FISH           | 100    | 4  |
|                     | AE        | 3-hydroxyanthranilate 3,4-dioxygenase                    |                                     | GS5-10, BPH,                 | GC             |        | 11 |
|                     | AE        | endothelial PAS domain protein 1 (homolog).              |                                     | GS5-10,BPH                   | GC             |        | 11 |
|                     | UR        | TACSTD1: tumor associated calcium signal transducer 1    |                                     | GS5-9, norm                  | GC             |        | 12 |
| 2p22-p21            | AE        | Latent transforming growth factor beta binding protein 1 |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 2p22.3-p21          | DR        | BRF2(butyrate response factor 2                          |                                     | GG4/5, BPH                   | GC             | 100    | 8  |
| 2p23                | AE        | KCNK3; potassium channel, subfamily K, member 3 (TASK)   |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 2p23-24             |           | NMYC; .  | possible connection with MYC        | Prim, Recur, Mets vs BPH     | FISH, TMA      |        | 13 |
| 2p25                | AE        | Tumor suppressing subtransferable candidate 1 (TSSC1)    |                                     | GS5-10, BPH                  | GC             |        | 11 |
|                     | UR        | AF052107   |                                     | GS5-9, norm                  | GC             |        | 12 |
| 2q                  | insertion |  |                                     | T1-4,Nx,Mx,0,1 vs norm       | CGH & FISH     | 27     | 7  |
|                     | deletion  |  |                                     | pT2N0                        | CGH            | 18     | 22 |
|                     | deletion  |  |                                     | GS5-10                       | CGH            |        | 1  |
| 2q12-q14            | DR        | DRAL (down-regulated in rhabdomyosarcoma lim protein)    |                                     | GG4/5, BPH                   | GC             | 100    | 8  |
| 2q21-q22            | deletion  |  |                                     | GS5-10                       | CGH            |        | 1  |
| 2q23.3              | AE        | Ras homolog gene family, member E                        |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 2q31-32.1           | AE        | CHN1 (chimaerin)   |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 2q33                | insertion |  |                                     | T1-4,Nx,Mx,0,1 vs norm       | CGH & FISH     |        | 7  |
|                     | UR        | PLCE (phospholipase C, epsilon)                          |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
|                     | deletion  | AOX1 (aldehyde oxidase 1)                                |                                     | GG4/5, BPH,                  | CGH            | 100    | 1  |
| 2q35                | DR        | DES (desmin)   |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
| 2q37                | AE        | Collagen, type VI, alpha 2                               |                                     | GS5-10, BPH,                 | GC             |        | 11 |
| <b>Chromosome 3</b> |           |  |                                     |                              |                |        |    |
| C3                  | deletion  |  | deletion only in hormone Refractory | T1-4,Nx,Mx,0,1 vs norm       | CGH & FISH     | 100    | 7  |
| 3p25-26             | LOH       | includes the <i>von Hippel Lindau gene</i>               |                                     | GS5-9, T2& T3N0M0, TXN+M0    | MSI            | 20     | 10 |
| 3p24-p22            | DR        | RAB5A, member of the RAS oncogene family                 |                                     | PCa, BPH                     | GC             |        | 5  |
| 3p21.2-p14.3        | AE        | Sarcolemmal-associated protein                           |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 3p21.1              | UR        | Arginine-rich protein                                    |                                     | GG 4/5, BPH,                 | GC             | 100    | 8  |
|                     | AE        | Arginine-rich protein                                    |                                     | GS5-10, BPH,                 | GC             | 1      | 11 |
| 3p21.2              | LOH       | PKCd?  |                                     |                              | FISH           |        | 4  |
| 3p21.3              | AE        | Chemokine (C-X3-C)receptor 1                             |                                     | GS5-10, BPH,                 | GC             |        | 11 |
| 3cen-q21            | DR        | MYLK (myosin, light polypeptide kinase)                  |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
|                     | DR        | CSTA (cystatin A or stefin A) @ 3q21                     |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
| 3q                  | insertion |  |                                     | T1-4,Nx,Mx,0,1 vs BPH        | CGH& FISH      | 24     | 7  |
|                     | insertion |  |                                     | GS5-10                       | CGH            | 18     | 1  |
| 3q13.1-13.2         | UR        | ALCAM/activated leucocyte cell adhesion molecule         |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
| 3q21                | AE        | CSRP2 (cysteine and glycine-rich protein)                | possible oncogene                   | GS5-10, BPH,                 | GC             | (1/15) | 11 |
|                     | insertion |  |                                     | GS5-10                       | CGH            |        | 1  |
|                     | insertion |  |                                     | GS5-10                       | CGH            |        | 1  |
| 3q21-q23            | AE        | EphB1  |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 3q22-q24            | DR        | TRPC1 (transient receptor potential channel 1)           |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
| 3q25.1-26.1         | AE        | SWI/SNF related  |                                     | GS5-10, BPH                  | GC             |        | 11 |
| 3q26                | LOH       | PKCi;?   |                                     |                              | FISH           |        | 4  |
| 3q25-26             | insertion |  |                                     | T1-4,Nx,Mx,0,1 vs norm       | CGH & FISH     |        | 7  |
| 3q26.1              | DR        | HKvBeta3 (potassium voltage-gated channel, b member 3)   |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
| 3q 28               | DR        | ETV5 (ets variant gene 5[ets-related molecule])          |                                     | GG4/5, BPH,                  | GC             | 100    | 8  |
|                     | AE        | ETV5   |                                     | GS5-10, BPH,                 | GC             |        | 11 |
|                     | OE        | ETV5   | possible response to ischemia       | Radical prostatectomy tissue | GC, WB, NB, IH |        | 14 |
| 3q29                | AE        | 3-hydroxybutyrate dehydrogenase (heart, mitochondria)    |                                     | GS5-10, BPH                  | GC             |        | 11 |

**Chromosome 4**

|                     |           |  |                                 |                           |           |        |    |
|---------------------|-----------|--|---------------------------------|---------------------------|-----------|--------|----|
| 4q                  | insertion |  |                                 | T1-4,Nx,Mx,0,1 vs norm    | CGH& FISH | 19     | 7  |
|                     | deletion  |  |                                 | GS5-10                    | CGH       | 18     | 1  |
| 4q12                | AE        | Sarcoglycan, beta  |                                 | GS5-10, BPH               | GC        |        | 11 |
| 4q13-q23            | insertion |  |                                 | T1-4,Nx,Mx,0,1 vs norm    | CGH& FISH |        | 7  |
| 4q21                | AE        | Small inducible cytokine B subfamily                           |                                 | GS5-10                    | GC        |        | 11 |
|                     | insertion |  | Found in metastases only        | GS5-10                    | CGH       | (1/15) | 1  |
| 4q22                | AE        | LIM protein  |                                 | GS5-10, BPH               | GC        |        | 11 |
|                     | AE        | LIM  |                                 | Prostate cancer, BPH      | GC        |        | 5  |
|                     | UR        | AL049969   |                                 | GS5-9,norm                | GC        |        | 12 |
| 4q22.1              | AE        | HEVIN; SPARC-like 1 (mast 9, hev1)                             |                                 | Prostate cancer, BPH      | GC        |        | 5  |
| 4q26-q27            | deletion  |  | possible tumor suppressor gene  | GS5-10                    | CGH       |        | 1  |
| 4q28.3              | insertion |  | Found in metastases only        | GS5-10                    | CGH       | (1/15) | 1  |
| 4q34-q35            | DR        | FAT tumor suppressor homolog 1 (drosophila)                    |                                 | Metastases                | GC        |        | 5  |
| <b>chromosome 5</b> |           |  |                                 |                           |           |        |    |
| 5p                  | deletion  |  |                                 | T2N0                      | CGH       |        | 22 |
| 5p13.2-11.1         | AE        | AMACR; alpha-methylacyl-CoA racemase                           |                                 | GS5-10, BPH               | GC        |        | 11 |
|                     | UR        | AMACR  |                                 | GS5-9, norm               | GC        |        | 12 |
| 5q                  | insertion |  |                                 | T1-4,Nx,Mx,0,1 vs norm    | CGH& FISH | 14     | 7  |
|                     | deletion  |  |                                 | T1N0M0                    | CGH       | 4.2    | 21 |
|                     | deletion  |  |                                 | T2N0                      | CGH       |        | 22 |
|                     | deletion  |  |                                 | GS5-10                    | CGH       | 32     | 1  |
| 5q2                 | UR        | HSD17B4/17b- hydroxysteroid dehydrogenase IV                   |                                 | GG4/5, BPH,               | GC        | 100    | 8  |
| 5q11                | deletion  |  | possible Tumor Suppressor Gene. | T2N0                      | CGH       | 6      | 22 |
| 5q12-23             | LOH       | eg APC   |                                 | GS5-9, T2& T3N0M0, TXN+M0 | MSI       | 17     | 10 |
| 5q13.1              | UR        | Neuronal apoptosis inhibitory protein                          |                                 | GG4/5, BPH,               | GC        | 100    | 8  |
| 5q13                | AE        | MAP1B; microtubule-associated protein 1B                       |                                 | GS5-10, BPH               | GC        |        | 11 |
| 5q15-q21            | deletion  | Contains the APC/MCC region                                    | possible Tumor Suppressor Gene. | GS5-10                    | CGH       |        | 1  |
| 5q15-q23            | deletion  |  |                                 | T1-4,Nx,Mx,0,1 vs norm    | CGH& FISH |        | 7  |
| 5q14-q31            | insertion |  |                                 | T1-4,Nx,Mx,0,1 vs norm    | CGH& FISH |        | 7  |
| 5q23                | AE        | Sorting nexin 2 (SNX2)   |                                 | GS5-10, BPH               | GC        |        | 11 |
| 5q31.1              | AE        | ETTF1; euk translation termination factor 1                    |                                 | GS5-10, BPH               | GC        |        | 11 |
| 5q32-q34            | DR+B171   | ANXA 6, annexin VI (p68)                                       |                                 | GG4/5, BPH,               | GC        | 100    | 8  |
|                     | AE        | annexin VI (p68)   |                                 | GS5-10, BPH,              | GC        |        | 11 |
|                     | DR        | DPYSL3 (dihydropyrimidinase-like 3)                            |                                 | GG4/5, BPH,               | GC        | 100    | 8  |
| 5q32-33             | AE        | Protocadherin 1 (cadherin-like 1)                              |                                 | GS5-10, BPH               | GC        |        | 11 |
| 5q34                | DR        | KCNMB1( potassium large conductance calcium activated channel) |                                 | GG4/5, BPH,               | GC        | 100    | 8  |
|                     | AE        | KCNMB1   |                                 | GS5-10, BPH,              | GC        |        | 11 |
| 5q35.3              | AE        | Enigma (LIM domain protein)                                    |                                 | GS5-10, BPH               | GC        |        | 11 |

**chromosome 6**

|                     |           |  |                                       |                              |                |       |        |    |
|---------------------|-----------|--|---------------------------------------|------------------------------|----------------|-------|--------|----|
| 6p21.2              | deletion  | (p21 WAF1/CIP1 cyclin kinase inhibitor: can induce G1 arrest   |                                       |                              |                |       |        |    |
| 6p21                | insertion |  | possible Tumor Suppressor Gene.       | GS5-10                       | CGH            |       |        | 1  |
| 6p21.2              | UR        | PIM1, pim1 oncogene  | regulation tied to MYC                | Mets, local, BPH, PIN, norm  | GC             |       |        | 5  |
| 6p21.31             | AE        | GABA B receptor 1(gamma-aminobutyric acid  |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| 6p22-p21            | DR        | ID4 (inhibitor of DNA binding 4)   |                                       | GG4/5, BPH,                  | GC             | 100   |        | 8  |
| 6q                  | deletion  |  |                                       | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      | 27    |        | 7  |
|                     | deletion  |  |                                       | T2N0                         | CGH            |       |        | 22 |
|                     | deletion  |  |                                       | GS5-10                       | CGH            | 43    |        | 1  |
|                     | LOH       |  |                                       | GS5-9, T2& T3N0M0, TXN+M0    | MSI            | 24    |        | 10 |
| 6q15-q16            | deletion  |  | possible Tumor Suppressor Gene.       | GS5-10                       | CGH            |       |        | 1  |
| 6q16                | deletion  |  |                                       | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      |       |        | 7  |
| 6q12-q21            | AE        | Glycoprotein hormones, alpha polypeptide chain precursor.<br>Or TAK1; transforming growth factor beta-activated kinase 1 |                                       | GS5-10, BPH,                 | GC             |       |        | 11 |
| 6q21                | deletion  | CCNC; encodes cell-cycle regulatory protein cyclin   |                                       | T2N0                         | CGH            |       |        | 22 |
| 6p22                | AE        | Butyrophilin, subfamily 2, member A2 (BTN2A2)  |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| 6q21-q23.2          | DR        | GJA1 (gap junction protein, a 1, 43kD(connexin 43))  |                                       | GG4/5, BPH,                  | GC             | 100   |        | 8  |
| 6q24-qter           | deletion  |  |                                       | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      |       |        | 7  |
| 6q25.1              | AE        | Estrogen receptor 1 (ESR1)   |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| <b>Chromosome 7</b> |           |  |                                       |                              |                |       |        |    |
| C7                  | insertion | Contains: CLK2, MDR1 and elongation factor-1-g.  | Trisomy associated with progression   | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      |       |        | 7  |
|                     | insertion |  |                                       |                              |                |       |        | 26 |
|                     | DR        | RARRES2(retinoic acid receptor responder 2)  |                                       | GG4/5, BPH,                  | GC             | 100   |        | 8  |
| 7p                  | insertion |  |                                       | HR                           | CGH& FISH      | 32,0  | 7, 54  |    |
| 7p11                | AE        | Dopa decarboxylase (aromatic L-amino acid decarboxylase)   |                                       | GS5-10, BPH,                 | GC             | 100   |        | 11 |
| 7p15-14             | UR        | T-cell receptor Ti rearranged g-chain  |                                       | GG4/5, BPH,                  | GC             | 100   |        | 8  |
| 7p15-p21            | insertion |  |                                       | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      |       |        | 7  |
| 7p22                | AE        | Islet cell autoantigen (69kDa)   |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| 7q                  | insertion |  |                                       | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      | 43    |        | 7  |
|                     | insertion |  |                                       | T1NxMx                       | CGH            | 4.2   |        | 21 |
|                     | insertion |  |                                       | GS5-10                       | CGH            | 21    |        | 1  |
| 7q11.2              | insertion |  | possible Tumor Suppressor Gene.       | GS5-10                       | CGH            |       |        | 1  |
| 7q11.21             | AE        | PDGF associated protein  |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| 7q11.23             | AE        | Claudin 4, CPE receptor (clostridium perfringens enterotoxin)  |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| 7q21                | insertion | Contains HGF (hepatocyte growth factor)  |                                       | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      |       | 7, 55  |    |
|                     | OE        | HGF  | overexpressed in response to ischemia | radical prostatectomy tissue | GC, WB, NB, IH |       |        | 14 |
|                     | AE        | Cytochrome P450 3A5 human;   |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| 7q21-22.1           | DR        | CYP3A7- cytochrome P450 (P-450 HFLa)   |                                       | GG4/5, BPH,                  | GC             | 100   |        | 8  |
| 7q22                | AE        | Procollagen C-endopeptidase enhancer   |                                       | GS5-10, BPH,                 | GC             |       |        | 11 |
| 7q22-q31.1          | AE        | PRKAR2B; Protein kinase, cAMP-dependent, regulatory, type II   |                                       | GS5-10, BPH                  | GC             |       |        | 11 |
| 7q31                | insertion | Caveolin (D7S486),<br>MET (receptor for HGF)   |                                       | T1-4,Nx,Mx,0,1 vs norm       | CGH& FISH      | 30100 |        | 7  |
|                     | LOH       | 2 possible genes, (not MET);.  | possible Tumor Suppressor Gene.       | T3N0M0                       | PCR MSA        |       |        | 16 |
|                     | DR        | CAV (caveolin 1, caveolae protein, 22Kda)  |                                       | GG4/5, BPH                   | GC             |       |        | 8  |
|                     | insertion |  | possible Tumor Suppressor Gene.       | GS5-10                       | CGH            |       |        | 1  |
| 7q31.1              | DR        | Caveolin 2   |                                       | GG4/5, BPH,                  | GC             | 100   |        | 8  |
|                     | AE        | Caveolin 2   |                                       | GS5-10, BPH,                 | GC             |       |        | 11 |
| 7q32                | insertion |  | Found in metastases only              | GS5-10                       | CGH            |       | (1/15) | 1  |
| 7q33                | DR        | HBNF-1 (nerve growth factor)   |                                       | GG4/5, BPH,                  | GC             | 100   |        | 8  |
|                     | AE        | HSPCO49 protein  |                                       | GS5-10, BPH,                 | GC             |       |        | 11 |
| 7q36-q35            | AE        | Potassium voltage-gated channel, subfamily H, member 2   |                                       | GS5-10, BPH,                 | GC             | 100   |        | 11 |

**Chromosome 8**

|                |           |  |                                   |                                    |                |        |    |
|----------------|-----------|--|-----------------------------------|------------------------------------|----------------|--------|----|
| 8p             | deletion  |  |                                   | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      | 73     | 7  |
|                | deletion  |  |                                   | T1NxMx                             | CGH            | 10.4   | 21 |
|                | deletion  |  |                                   | T2NO                               | CGH            |        | 22 |
|                | deletion  |  |                                   | GS5-10                             | CGH            | >48    | 1  |
|                | LOH       |  |                                   | GS5-9, T2& T3N0M0, TXN+M0          | MSI            | 69     | 10 |
| 8p11.2-p11.1   | deletion  |  |                                   | N/A, 17 malignant tumors, 1 benign | CGH,FISH,PCR   |        | 2  |
| 8p12-p22       | DR        | FGFR1 (fibroblast growth factor receptor 1)                      |                                   | GG4/5, BPH,                        | GC             | 100    | 8  |
|                | deletion  |  |                                   | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |        | 7  |
|                |           | LPL  |                                   |                                    |                |        | 56 |
| 8p21           | UR        | TRPM-2(testosterone-repressed prostate message 2                 |                                   | GG4/5, BPH,                        | GC             | 100    | 8  |
|                | deletion  | NKX3.1 human prostate specific, androgen-reg homeobox gene;      |                                   | T2NO                               | CGH            |        | 22 |
|                | AE        | NEFL (16)Tumor protein D52                                       |                                   | GS5-10, BPH                        | GC             |        | 11 |
|                | deletion  | NKX3.1   | possible Tumor Suppressor Gene.   | GS5-10                             | CGH            |        | 1  |
| 8p21.2         | deletion  |  |                                   | T2NO                               | CGH            |        | 22 |
| 8p22           | deletion  | Contains NKX3.1 gene: prostate specific,                         | possible Tumor Suppressor Gene.   | T2NO                               | CGH            | Common | 22 |
|                | deletion  | N33  | possible Tumor Suppressor Gene.   |                                    |                | rare   | 17 |
|                | deletion  | LZTS1 (FEZ1)   | possible Tumor Suppressor Gene.   | T1NxMx                             | CGH            |        | 21 |
|                | deletion  |  |                                   | N/A                                |                |        | 57 |
|                | AE        | human acid ceramidase gene;                                      | promotes apoptosis                | GS5-7, BPH, cell lines, norm       | SB, NB, RT PCR | 15/36  | 18 |
|                | deletion  | LPL; lipoprotein lipase  |                                   | GS5-9 (T3), Mets (N1)              | SB,MSI         | 47     | 19 |
|                | deletion  | MSR;macrophage scavenger receptor gene;                          |                                   | GS5-9 (T3), Mets (N1)              | SB,MSI         | 69     | 19 |
| 8p 22-p21      | All Imb   |  | 2 possible Tumor suppressor genes | T3NoMo                             | PCR MSA        | 58     | 16 |
| 8p22-pter      | deletion  |  | possible Tumor Suppressor Gene.   | GS5-10                             | CGH            |        | 1  |
| 8p23           | deletion  |  |                                   | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |        | 7  |
| 8p23.1-21.3    | DR        | IGFBP5 = NAT1 (N-acetyl transferase)                             |                                   | Metastases                         | GC             |        | 5  |
| 8q             | insertion |  |                                   | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      | 73     | 7  |
|                | insertion |  |                                   | T2NO                               | CGH            |        | 22 |
|                | deletion  |  |                                   | T2NO                               | CGH            |        | 22 |
|                | insertion |  |                                   | GS5-10                             | CGH            | 36     | 1  |
|                | insertion | whole arm of q.  |                                   | N/A, 17 malignant tumors, 1 benign | CGH,FISH,PCR   |        | 2  |
| 8q21           | insertion |  |                                   | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |        | 7  |
| 8q21.13        | AE        | E2F transcription factor 5, p130-binding                         |                                   | GS5-10, BPH,                       | GC             | 100    | 11 |
| 8q22.3-q23     | DR        | KIAA0003/ANGPT1 (angiopoietin 1)                                 |                                   | GG4/5, BPH,                        | GC             | 100    | 8  |
| 8q23-qter      | insertion |  |                                   | T1-4,Nx,Mx,0,1 vs norm             | CGH & FISH     |        | 7  |
| 8q24           | insertion | Contains c-MYC: regn of cell proliferation, diff. and apoptosis. |                                   | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      | 10     | 7  |
|                | insertion | c-MYC  | oncogene,                         | Prim, Recur, Mets, vs BPH,         | FISH TMA       | <11    | 13 |
|                | insertion | c-MYC  | Protooncogene                     | HR                                 |                |        | 55 |
|                | insertion | c-MYC; gene amplications (low copy no.)                          | oncogene                          | GS5-10                             | CGH            |        | 1  |
|                | insertion | MYC proto-oncogene   |                                   | GS4-10, BPH                        | FISH           | 33     | 15 |
| 8q24.1         | UR        | Ectonucleotide pyrophosphatase/phosphodiesterase 2               |                                   | Prostate cancer, BPH               | GC             |        | 5  |
| 8q24.12-q24.13 | AE        | v-myc avian myelocytomatosis viral oncogene homolog              |                                   | GS5-10, BPH                        | GC             |        | 11 |

| Chromosome 9  |           |   |                                     |   |                      |             |    |
|---------------|-----------|---|-------------------------------------|---|----------------------|-------------|----|
| 9p21          | deletion  | p16 (INK4A/MTS1/CDKN2);                                   | multiple tumor suppressor gene site | N/A, 32 Prostate Tumors, 2 cell lines                         | SB, PCR              | (1 / 32)    | 20 |
| 9q            | insertion |   |                                     | T1NxMx  | CGH                  | 6.3         | 21 |
|               | gains     |   |                                     | T2NO  | CGH                  |             | 22 |
|               | LOH       |   |                                     | GS5-7, 8&9, HR, Mets, norm                                    | SB                   | 15          | 25 |
|               | insertion |   |                                     | GS5-10  | CGH                  | 18          | 1  |
| 9q12-q21.2    | DR        | ANXA1, annexin 1  |                                     | GS6-9, BPH, HR  | GC                   |             | 6  |
| 9q21-q22      | insertion | PCA3 (DD3),non coding RNA                                 | possible oncogene                   | T2NO  | CGH                  |             | 22 |
|               | AE        | DD3;prostate specific                                     |                                     | BPH, Mets, norm   | NB, RT PCR           | 95          | 27 |
|               | DR        | RNAROR2 (receptor tyrosine kinase-like orphan receptor 2) |                                     | GG4/5, BPH,   | GC                   | 100         | 8  |
| 9q21.3-22.1   | DR        | gas 1 gene  |                                     | GG4/5, BPH,   | GC                   | 100         | 8  |
| 9q22          | AE        | CDC28 protein kinase 2 (CKS2)                             |                                     | GS5-10, BPH   | GC                   |             | 11 |
| 9q32-qter     | insertion |   | possible oncogene                   | GS5-10  | CGH                  |             | 1  |
| 9q34.1        | insertion | ABL   | oncogene                            | T2NO  | CGH                  |             | 22 |
| 9q34.2-qter   | insertion |   | Possible oncogene                   | T1NxMx  | CGH                  |             | 21 |
| Chromosome 10 |           |   |                                     |   |                      |             |    |
| 10p           | deletion  |   |                                     | T1-4,Nx,Mx,0,1 vs norm  | CGH& FISH            | 22          | 7  |
| 10p11         | deletion  |   |                                     | T1-4,Nx,Mx,0,1 vs norm  | CGH& FISH            |             | 7  |
| 10p15         |           | PKCq very distal,   |                                     |   | FISH                 |             | 4  |
| 10p22         | deletion  |   |                                     | T1-4,Nx,Mx,0,1 vs norm  | CGH& FISH            | 22          | 7  |
| 10q           | LOH       |   | possible Tumor Suppressor Gene.     | Local GS5-7, 8&9, HR, Mets,norm                               | SB                   | 29          | 25 |
|               | deletion  |   |                                     | GS5-10  | CGH                  | 18          | 1  |
| 10q11.1       | DR        | SDF1 (stromal cell-derived factor 1)                      |                                     | GG4/5, BPH,   | GC                   | 100         | 8  |
|               | AE        | SDF1 (stromal cell-derived factor 1)                      |                                     | GS5-10, BPH,  | GC                   |             | 11 |
| 10cen-q21     | deletion  |   | tumor suppressor gene               | T1-4,Nx,Mx,0,1 vs norm  | CGH& FISH            |             | 7  |
| 10q21.1       | AE        | EGR2;early growth response 2 (Krox-20(drosophila homolog) |                                     | GS5-10, BPH   | GC                   |             | 11 |
| 10q21.1-21.2  | DR        | ANXA 7; annexin 7   |                                     | GS6-9, BPH, HR  | GC                   |             | 6  |
| 10q21.3       | insertion |   | Found in metastses only             | GS5-10  | CGH                  | (1/15)      | 1  |
| 10q22         | DR        | CAMK2G (calcium/calmodulin-dependant protein kinase       |                                     | GG4/5, BPH,   | GC                   | 100         | 8  |
|               | AE        | CAMK2G  |                                     | GS5-10, BPH   | GC                   |             | 11 |
| 10q22.1-qter  | deletion  | Mxi1; candidate tumor suppressor gene                     |                                     | GS4-9, Lymph node mets, & mets,<br>HR (GS6-10) vs TURP& blood | CGH, SB<br>& PCR MSA |             | 3  |
| 10q22.1-q23   | DR        | VCL (vinculin)  |                                     | GG4/5, BPH,   | GC                   | 100         | 8  |
| 10q23         | deletion  | PTEN; protein tyrosine phosphatase gene                   | tumor suppressor gene               | T2NO  | CGH                  |             | 22 |
|               | deletion  | PTEN  | tumor suppressor gene               | cell lines;( LNCaP)   | RT PCR, SB           | 100         | 28 |
|               | DR        | PTEN  |                                     | Prostate cancer   | GC                   |             | 5  |
|               | deletion  | TEP1/PTEN/MMAC1;+C33                                      |                                     | cell lines  | NB                   |             | 30 |
|               | DR        | ANXA 11, annexin 11                                       |                                     | GS6-9, BPH, HR  | GC                   |             | 6  |
| 10q23.3       | deletion  | MMAC1   | possible Tumor Suppressor Gene.     |   |                      | 26, 3       |    |
| 10q23-q24     | DR        | RBP (retinal binding protein)                             |                                     | GG4/5, BPH,   | GC                   | 100         | 8  |
|               | AE        | Retinal binding protein 4, interstitial                   |                                     | GS5-10, BPH,  | GC                   |             | 11 |
| 10q24         | deletion  | MXI1; a negative regulator of the MYC oncoprotein         | possible Tumor Suppressor Gene.     | GS5-10  | CGH                  |             | 1  |
|               | LOH       | RB; retinoblastoma gene; suppress tumorigenicity          |                                     | Prim, Mets, BPH   | IH, PCR              | 10 to 30    | 32 |
| 10q25         | deletion  | MXI-1   | possible Tumor Suppressor Gene.     |   |                      | Rare 26, 31 |    |
|               | deletion  | MXI-1   | tumor suppressor gene               | T1-4,Nx,Mx,0,1 vs norm  | CGH& FISH            | 46          | 7  |
| 10q26         | deletion  |   | tumor suppressor gene               | T1-4,Nx,Mx,0,1 vs norm  | CGH& FISH            |             | 7  |
|               | DR        | Fibroblast growth factor receptor K-Sam                   |                                     | GG4/5, BPH,   | GC                   | 100         | 8  |

|                      |           |   |                                       |                                    |                |      |    |  |
|----------------------|-----------|---|---------------------------------------|------------------------------------|----------------|------|----|--|
| <b>chromosome 11</b> |           |   |                                       |                                    |                |      |    |  |
| 11p11.2              | UR        | PSMA  |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
| 11p15.1              | AE        | RIG, regulated in glioma  |                                       | Mets, local, BPH, PIN, norm        | GC             |      | 5  |  |
| 11p15.5              | DR        | H19 RNA gene  |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
|                      | DR        | IGF II (insulin-like growth factor 2)                             |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
| 11p15.5-p15.3        | AE        | Lactate dehydrogenase C (LDHC)                                    |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 11q                  | insertion |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      | 22   | 7  |  |
| 11q11                | AE        | PRO1659 protein   |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 11q12                | AE        | Protein phosphatase 2, regulatory subunit B (B56) b isoform       |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 11q12-q13.1          | AE        | Serine (or cysteine) proteinase inhibitor, clade G (C1 inhibitor) |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 11q13                | insertion | CCND1: cyclin D1; Primary G1 to S phase cyclins.                  | not linked with MYC or AR.            | Prim, Recur, Mets, vs BPH,         | FISH TMA       |      | 13 |  |
|                      | insertion | CCND1: cyclin D1; Primary G1 to S phase cyclins.                  |                                       | GS 4-10,BPH                        | FISH           | 24.5 | 15 |  |
|                      | UR        | GSTP1 (glutathione S-transferase pi)                              |                                       | GG4/5, BPH,                        | GC             |      | 8  |  |
| 11q22                | insertion |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |      | 7  |  |
| 11q22.3-q23.1        | DR        | CRYAB (crystallin, a B) heat shock like protein.                  |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
|                      | AE        | CRYAB   |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
|                      | OE        | CRYAB   | overexpressed in response to ischemia | radical prostatectomy tissue       | GC, WB, NB, IH |      | 14 |  |
| 11q22-q23            | DR        | ATDC: ataxia-telangiectasia group D-associated protein            |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
| 11q 24-q25           | AE        |   | Suppression of tumorigenicity 14      | GS5-10, BPH,                       | GC             | 100  | 11 |  |
| <b>Chromosome 12</b> |           |   |                                       |                                    |                |      |    |  |
| 12p11.2              | AE        | DKFZP56401863 Protein   |                                       | GS5-10, BPH,                       | GC             | 100  | 11 |  |
| 12p13.1-p12.3        | AE        | Microfibril-associated glycoprotein-2                             |                                       | GS5-10, BPH,                       | GC             | 100  | 11 |  |
| 12p13                | DR        | KIAK0002/CCND2 (cyclin D2)  |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
| 12q                  | insertion |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      | 22   | 7  |  |
| 12q13                | DR        | KRT5-keratin type II  |                                       | GG4/5, BPH                         | GC             | 100  | 8  |  |
|                      | UR        | KRT18 (Keratin 18)  |                                       | GS5-9, norm                        | GC             |      | 12 |  |
| 12q12-q13            | UR        | Homeo box c8 protein  |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
|                      | DR        | IGFBP6 (insulin-like growth factor binding protein 6)             |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
|                      | AE        | TAR2PT [TAR(HIV) RNA-binding protein 2                            |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 12q13.11-q13.12      | DR        | NELL2 (nel(chicken)-like2)  |                                       | GG4/5, BPH,                        | GC             | 100  | 8  |  |
| 12q13-q14            | AE        | TS translation elongation factor, mitochondrial                   |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 12q14                | AE        | RAP1B, member of RAS oncogene family                              |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 12q21                | insertion |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |      | 7  |  |
| 12q22-23             | AE        | Insulin-like growth factor 1 (somatomedia C)                      |                                       | GS5-10, BPH,                       | GC             |      | 11 |  |
|                      | AE        | DUS6; dual specificity protein phosphatase 6                      |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 12q24.31             | AE        | HM74, putative chemokine receptor, GTP-binding protein            |                                       | GS5-10, BPH                        | GC             |      | 11 |  |
| 12q24.13             | AE        | NM23B expressed in NME2   |                                       | GS5-10, BPH,                       | GC             | 100  | 11 |  |
| 12q24.4              | UR        | CAMKK2; calcium/calmodulin-dependant kinase kinase 2 b            |                                       | GS5-9, BPH                         | GC             |      | 12 |  |
| <b>Chromosome 13</b> |           |   |                                       |                                    |                |      |    |  |
| 13q                  | deletion  |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      | 51   | 7  |  |
|                      | insertion |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      | 19   | 7  |  |
|                      | deletion  |   |                                       | T1NxMx                             |                | 6.3  | 21 |  |
|                      | deletion  |   |                                       | T2NO                               | CGH            | com  | 22 |  |
|                      | LOH       | include 68RS20 in Rb gene (13q14)                                 | possible Tumor Suppressor Gene.       | Local GS5-7, 8&9, HR, Mets, norm   | SB             |      | 25 |  |
|                      | LOH       | markers selected near Rb1   |                                       | GS4-9, T2b-T3c, N1,Mx vs norm      | PCR            | 23   | 33 |  |
|                      | deletion  |   |                                       | GS5-10                             | CGH            | 55   | 1  |  |
| 13q12                | deletion  | BRCA2 & BRUSH-1   | possible Tumor Suppressor Gene.       | N/A, 17 malignant tumors, 1 benign | CGH, FISH, PCR |      | 2  |  |
|                      | deletion  | Pseudogene of antioncogene nm-23 H1                               |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |      | 7  |  |
| 13q14                | deletion  | Rb(1):Retinoblastoma suppressor gene;                             | tumor suppressor gene                 | GS 4-10, BPH                       | FISH           | 22   | 15 |  |
| 13q14.1-q21.3        | deletion  |   | tumor suppressor gene                 | T1NxMx                             |                |      | 21 |  |
| 13q21                | deletion  |   |                                       | T2NO                               | CGH            |      | 22 |  |
|                      |           |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |      | 7  |  |
|                      |           |   |                                       | GS5-10                             | CGH            |      | 1  |  |
| 13q21.1-21.3         | deletion  |   |                                       | T2NO                               | CGH            |      | 22 |  |
| 13q22                | deletion  | Endothelin B receptor gene (ENDRB)                                |                                       | T2NO                               | CGH            | Com. | 22 |  |
| 13q31                | insertion |   |                                       | T1-4,Nx,Mx,0,1 vs norm             | CGH& FISH      |      | 7  |  |
| 13q34                | AE        | Collagen, type IV, alpha1 chain precursor                         |                                       | GS5-10, BPH                        | GC             |      | 11 |  |

**Chromosome 14**

|             |          |   |  |             |      |     |    |
|-------------|----------|---|--|-------------|------|-----|----|
| C14         | DR       | MIG2 (mitogen inducible 2)                                |  | GG4/5, BPH, |      | 100 | 8  |
| 14q         | deletion |   |  | T2NO        | CGH  |     | 22 |
| 14q11.1     | AE       | Signal transduction protein (SH3 containing)              |  | GS5-10, BPH | GC   |     | 11 |
| 14q11.2-q12 | UR       | APEX nuclease   |  | GG4/5, BPH, | GC   | 100 | 8  |
| 14q11.2-q21 | AE       | Mitogen-activated protein kinase kinase kinase 5 (MAPAK5) |  | GS5-10, BPH | GC   |     | 11 |
| 14q21-q22   | DR       | PYGL (phosphorylase, glycogen; liver)                     |  | GG4/5, BPH, | GC   | 100 | 8  |
| 14q22-23    |          | PKCh  |  |             | FISH |     | 4  |
| 14q24       | DR       | TGFB3 (transforming growth factor-b 3                     |  | GG4/5, BPH, | GC   | 100 | 8  |
| 14q31       | DR       | ITPK1 (Inositol 1,3,4-triphosphate 5/6 kinase)            |  | GG4/5, BPH, | GC   | 100 | 8  |

**Chromosome 15**

|             |          |  |  |                             |           |     |    |
|-------------|----------|--|--|-----------------------------|-----------|-----|----|
| 15q         | deletion |  |  | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH | 35  | 7  |
| 15q11-q13   | UR       | Ring Zinc finger protein (ANF127-xp)                           |  | GG4/5, BPH,                 | GC        | 100 | 8  |
| 15q15-q21.1 | DR       | FGF7 (fibroblast growth factor 7 [keratinocyte growth factor]) |  | GG4/5, BPH,                 | GC        | 100 | 8  |
| 15q15       | AE       | THBS1, thrombospondin -1                                       |  | Mets, local, BPH, PIN, norm | GC        |     | 5  |
| 15q21-q22   | DR       | LIP2 (lipocortin II)   |  | GG4/5, BPH,                 | GC        | 100 | 8  |
|             | DR       | ANXA2, annexin 2   |  | GS6-9, BPH, HR              | GC        |     | 6  |
| 15cen-q21   | deletion |  |  | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH |     | 7  |
|             | UR       | ERK3 (extracellular signal -regulated kinase),at 15q21.        |  | GG4/5, BPH                  | GC        | 100 | 8  |
| 15q25-qter  | deletion |  |  | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH |     | 7  |
| 15q26       | UR       | ALDH6;aldehyde dehydrogenase 1 family member A3                |  | GS5-9, BPH                  | GC        |     | 12 |

**Chromosome 16**

|                 |          |   |                                       |                                   |                |     |    |
|-----------------|----------|---|---------------------------------------|-----------------------------------|----------------|-----|----|
| 16p             | deletion |   |                                       | N/A, 17 malignant tumor, 1 benign | CGH,FISH,PCR   |     | 2  |
| 16p11.1         | AE       | TGFb -1 induced transcript 1                                    |                                       | GS5-10, BPH                       | GC             |     | 11 |
| 16p11.2         | AE       | Kinesin-like 4 (replicator binding protein)                     |                                       | GS5-10, BPH,                      | GC             |     | 11 |
|                 | AE       | Protein kinase C, b 1   |                                       | GS5-10, BPH,                      | GC             |     | 11 |
| 16p11-13        | AE       | NPIP, mRNA, nuclear pore complex interacting protein            |                                       | GS5-10, BPH,                      | GC             |     | 11 |
| 16p12           |          | PKCb1   |                                       |                                   | FISH           |     | 4  |
|                 | AE       | G protein coupled receptor, family C, group5, member BPKCb1     |                                       | GS5-10, BPH,                      | GC             |     | 11 |
|                 |          | PKCb1   |                                       | GS5-10, BPH,                      | GC             |     | 11 |
| 16p13.13-p13.12 | DR       | MYH11(myosin heavy polypeptide 11, smooth muscle)               |                                       | GG4/5, BPH,                       | GC             | 100 | 8  |
|                 | DR       | A-362G6.1 (hypothetical protein)                                |                                       | GG4/5, BPH                        | GC             | 100 | 8  |
| 16q             | deletion |   |                                       | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      | 46  | 7  |
|                 | deletion |   |                                       | pT2NO                             | CGH            |     | 22 |
|                 | LOH      | Using a 16q22-24 highly polymorphic loci                        | possible tumor suppressor gene        | Local, GS5-7, 8&9, HR, Mets, norm | SB             | 31  | 25 |
|                 | deletion |   |                                       | GS5-10                            | CGH            | 25  | 1  |
|                 | deletion |   |                                       | N/A, 17 malignant tumor, 1 benign | CGH,FISH,PCR   |     | 2  |
| 16q12           | AE       | Ste-20 related kinase (to serine threonine kinase 39 at 2q24.3) |                                       | GS5-10, BPH                       | GC             |     | 11 |
| 16q12.2-q13     | DR       | KIAA0025 (KIAA025 gene product; MMS inducible gene)             |                                       | GG4/5, BPH                        | GC             | 100 | 8  |
| 16q13           | DR       | MT1G (metallothionein 1G)                                       |                                       | GG4/5, BPH,                       | GC             | 100 | 8  |
|                 | DR       | MT1L (metallothionein 1L)                                       |                                       | GG4/5, BPH,                       | GC             | 100 | 8  |
|                 | DR       | MT2A (metallothionein 2A)                                       |                                       | GG4/5, BPH,                       | GC             | 100 | 8  |
|                 | OE       | MT1L (metallothionein 1L)                                       | overexpressed in response to ischemia | radical prostatectomy tissue      | GC, WB, NB, IH |     | 14 |
| 16q13-q21       | AE       | Matrix metalloproteinase 2                                      |                                       | GS5-10, BPH,                      | GC             |     | 11 |
| 16q22           | AE       | Dihydroorotate dehydrogenase                                    |                                       | GS5-10, BPH                       | GC             |     | 11 |
|                 | deletion |   |                                       | GS5-10                            | CGH            |     | 1  |
| 16q22.1         | deletion | CDH1 (E-cadherin ) or CTCF gene (regulates MYC expression)      | possible tumor suppressor gene        | T2NO                              | CGH            |     | 22 |
|                 | DR       | CDH1 (E-cadherin )  |                                       | prostate cancer                   | GC             |     | 5  |
| 16q23.1         | AE       | Carboxylesterase 2 (intestine, liver)                           |                                       | GS5-10, BPH                       | GC             |     | 11 |
| 16q23-q24       | LOH      |   | possible tumor suppressor gene        | T3NoMo                            | PCR MSA        | 53  | 16 |
| 16q24           | deletion |   | possible tumor suppressor gene        | T1-4,Nx,Mx,0,1 v norm             | CGH& FISH      |     | 7  |

**Chromosome 17**

|            |  |  |                               |  |                                      |                   |                |
|------------|--|--|-------------------------------|--|--------------------------------------|-------------------|----------------|
| C17        | insertion<br>insertion<br>insertion<br>UR      | Polysomy Her-2/neu oncogenes .<br>PYCR1/pyrroline 5-carboxylate reductase 1  |                               | T3, GS7<br>GP4, GS7, <T3b  | ISH<br>FISH                          | Rare<br>Com       | 58<br>54       |
| 17p        | deletion<br>insertion<br>insertion<br>deletion |  | aneusomy in metastases        | GG4/5, BPH,<br>T1-4,Nx,Mx,0,1 vs norm<br>T1NxMx<br>T2NO                            | FISH, ISH<br>GC<br>CGH & FISH<br>CGH | 100<br>41<br>10.4 | 8<br>7<br>21   |
| 17p12      | insertion                                      |  | Possible oncogenes            | N/A, 17 malignant tumors, 1 benign<br>T1NxMx                                       | CGH,FISH,PCR<br>CGH                  |                   | 2<br>21        |
| 17p13      | deletion<br>deletion                           | p53<br>p53:  | 50% loss in AR and 65% in HR  | T(2-3) N1(-3)M(0)<br>GS4-9, Lymph Node Mets. & Mets,<br>HR (GS6-10) vs TURP& blood | FISH<br>CGH, SB<br>& PCR MSA         | 46<br>50/65       | 56<br>3        |
| 17p13.1    | LOH<br>LOH<br>LOH<br>DR                        | p53<br>p53<br>p53; deactivation of the gene<br>SERPINF1 (serine [or cysteine] proteinase inhibitor, clade F, 1)    | possible anti-metastasis gene | Prim vs Mets (GS5-9)(not BPH or norm).<br>norm. GS 3/3 to 4/5                      | IH<br>PCR/seq for SNPs.<br>IH, PCR   | 8.5 vs23'<br>>50  | 34<br>35<br>36 |
| 17q        | insertion<br>insertion<br>deletion             |  |                               | GG4/5, BPH,<br>T1NxMx<br>T2NO  | GC<br>CGH<br>CGH                     | 100<br>10.4       | 8<br>21<br>22  |
| 17q11.2    | insertion                                      |  | Possible oncogene             | N/A, 17 malignant tumors, 1 benign<br>GS5-10                                       | CGH,FISH,PCR<br>CGH                  |                   | 2<br>1         |
| 17q12-q21  | DR   | KRT14 (keratin14)  |                               | GG4/5, BPH,<br>GS 4-10,BPH   | GC<br>FISH                           | 100               | 8<br>15        |
| 17q13      | LOH<br>AE                                      | HER-2/neu c-ERBB2;<br>TNF (ligand) superfamily, member 12  | disputed cf ref 13            | GS5-10, BPH,<br>GS5-10, BPH,<br>GS5-10   | GC<br>GC<br>CGH                      |                   | 11<br>11<br>1  |
| 17q        | AE<br>insertion                                | COP22 for nonclathrin coat protein zeta-COP  |                               | GS5-10, BPH<br>T2NO  | GC<br>CGH                            | 23                | 11<br>22       |
| 17q21      | AE   | Amine oxidase, (vascular adhesion protein 1)   |                               | GS5-10, BPH  | GC                                   |                   | 11             |
| 17q21.1    | insertion                                      | ERBB2 (breast)?  | Possible oncogene             | T2NO<br>T1-4,Nx,Mx,0,1 vs norm   | CGH<br>CGH & FISH                    |                   | 22<br>7        |
| 17q21.3    | AE<br>AE                                       | NM23A expressed in NME<br>CDC6 (cell division cycle 6, S. cerevisiae) homolog                                      |                               | Prim, Recur, Mets, vs BPH<br>GS5-10, BPH,  | FISH TMA<br>GC                       |                   | 13<br>11       |
| 17q24      | LOH  | PKCa:?   |                               |  | FISH                                 |                   | 4              |
| 17q24-qter | insertion<br>insertion                         |  | Possible oncogene<br>oncogene | T1NxMx<br>GS5-10<br>GS5-9  | CGH<br>CGH<br>GC, IH                 |                   | 21<br>1<br>12  |
| 17q25      | UR<br>UR<br>UR                                 | FASN;fatty acid synthase<br>P4HB;procollagen-proline 2-oxoglutarate 4 dioxygenase beta<br>FASN;fatty acid synthase |                               | GS5-9<br>Mets, local, BPH, PIN, norm   | GC<br>GC                             |                   | 12<br>12<br>5  |
| 17q25.3    | AE<br>UR                                       | TIMP2, tissue inhibitor of metalloproteinase 2<br>PCYR1; pyrroline-5carboxylate reductase 1                        |                               | Mets, local, BPH, PIN, norm<br>GS5-9, normal                                       | GC<br>GC                             |                   | 5<br>12        |

| Chromosome           | Region | Variant   | Gene/Function   | Associated Genes                  | Method                      | Count      | Count              |
|----------------------|--------|-----------|---|-----------------------------------|-----------------------------|------------|--------------------|
| <b>Chromosome 18</b> |        |           |   |                                   |                             |            |                    |
| C18 long             |        | deletion  | DCC and DPC4 (Smad 4);  | 2 possible tumor suppressor genes | T2NO                        | CGH        | 22                 |
| 18q                  |        | deletion  |   |                                   | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH  | 19 7               |
|                      |        | insertion |   |                                   | T1-4,Nx,Mx,0,1 vs norm      |            | 30                 |
|                      |        | deletion  |   |                                   | T2NO                        | CGH        | 22                 |
|                      |        | deletion  |   |                                   | T1NxMx                      | CGH        | 4.2 21             |
|                      |        | deletion  |   |                                   | GS5-10                      | CGH        | 20 1               |
| 18q11-q12            |        | DR        | SLC14A1-urea transporter                                      |                                   | GG4/5, BPH,                 | GC         | 100 8              |
| 18q12                |        | insertion |   |                                   | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH  | 7                  |
| 18q21                |        | deletion  | DCC, DPC4 or ?  | possible tumor suppressor genes   | GS5-10                      | CGH        | 1                  |
| 18q21-22             |        | LOH       |   |                                   | T3NoMo                      | PCR MSA    | 45 16              |
| 18q21.3              |        | UR        | Bcl-2   | tumorigenesis                     | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH  | 7                  |
|                      |        | deletion  | DCC   |                                   |                             |            |                    |
|                      |        |           | SMAD4 (DPC4)  |                                   |                             |            | 10./13 37, 38      |
|                      |        | UR        | Bcl-2   |                                   | HR vs non-HR mets           | IH         | 24                 |
|                      |        | UR        | P15- protease inhibitor 5 (maspin)                            |                                   | GG4/5, BPH,                 | GC         | 100 8              |
| 18q22-qter           |        | deletion  |   |                                   | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH  | 7                  |
| <b>Chromosome 19</b> |        |           |   |                                   |                             |            |                    |
| C19                  |        | deletion  | Contains Putative TSG's; BAX & LKB1                           |                                   | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH  | 43 7               |
| 19p13.1-13.2         |        | UR        | MIC-1;PLAB  |                                   | GG4/5, BPH                  | GC         | 100 8              |
|                      |        | UR        | MIC-1;PLAB;secreted cytokine                                  |                                   | GS5-9, norm                 | GC, RTPCR  | 12                 |
| 19p13.2              |        | AE        | CipP (caseinolytic protease, ATP-dependant) homolog           |                                   | GS5-10, BPH                 | GC         | 11                 |
| 19p13.3              |        |           | HIC-1; hypermethylated in cancer                              | possible tumor suppressor gene    |                             |            | 26, 39             |
| 19q11-q13.2          |        | UR        | Hepsin: transmembrane extracellular serine protease;          | cell growth control               | NBPM;                       | GC & ISH   | 40                 |
|                      |        | UR        | Hepsin  |                                   | GG4/5, BPH                  | GC         | 100 8              |
|                      |        | UR        | Hepsin  |                                   | GS5-10, BPH                 | GC, RTPCR  | 100 11             |
|                      |        | UR        | Hepsin  |                                   | GS5-9, norm                 | GC, RTPCR, | 12                 |
|                      |        |           | hepsin (HPN)  |                                   | prostate cancer tissue, BPH | GC         | 5                  |
| 19q13.1              |        | DR        | COX7A1 (cytochrome c oxidase subunit V11a polypeptide 1)      |                                   | GG4/5, BPH,                 | GC         | 100 8              |
|                      |        | AE        | FXYD domain-containing ion transporter regulator 1            |                                   | GS5-10, BPH,                | GC         | 11                 |
| 19pter-q13.1         |        | deletion  |   |                                   | T1-4,Nx,Mx,0,1 vs norm      | CGH& FISH  | 7                  |
| 19q13.3              |        | AE        | Fc fragment of IgG, receptor, transporter, alpha              |                                   | GS5-10, BPH                 | GC         | 11                 |
| 19q13.3-qter         |        | DR        | RRAS (related RAS viral [r-ras] oncogene homology             |                                   | GG4/5, BPH                  | GC         | 100 8              |
| 19q13.4              |        | LOH       | PKCg ;  |                                   |                             | FISH       | 4                  |
|                      |        | UR        | MTA-1, alpha-1-B glycoprotein                                 |                                   | Mets, local, BPH, PIN, norm | GC         | 5                  |
| 19q13.41             |        |           | PSA (KLK3); serine protease                                   |                                   |                             |            | 41                 |
| 19q13.3-q13.4        |        |           | KLK1;pancreatic/renal kalikrein                               |                                   |                             |            | 41                 |
|                      |        |           | KLK2 human glandular kalikrein                                |                                   |                             |            | 41                 |
|                      |        |           | PRSSL1(NES1);normal epithelial cell-specific 1                | breast.                           |                             |            | 43, 44, 42         |
|                      |        |           | Protease M (zyme, neurosin)                                   | brain, ovarian and breast cancer  |                             |            | 43, 45, 46, 47, 42 |
|                      |        |           | KLK4; prostate specific antigen-related serine protease gene, | endometrial, prostate et al       | N/A                         | PCR        | 42                 |
|                      |        | DR        | KLK5  |                                   | norm, T1-T3                 | RT-PCR     | 48                 |
|                      |        | AE        | KLK14; secreted serine protease with trypsin-like substrate.  | follow klk3 and klk2              | benign, malignant           | ISH        | 49                 |
|                      |        |           | TLSP; trypsin-like serine protease                            |                                   |                             |            | 41                 |
|                      |        |           | HSCCE; human stratum corneum chymotryptic enzyme.             |                                   |                             |            | 41                 |
|                      |        |           | KLK-L1-4  |                                   |                             |            | 41                 |

|                      |           |   |                                 |                                   |                |        |    |  |
|----------------------|-----------|---|---------------------------------|-----------------------------------|----------------|--------|----|--|
| <b>Chromosome 20</b> |           |   |                                 |                                   |                |        |    |  |
| 20pter-p12           | DR        | PRNP (prion protein (p27-30))                             |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
|                      | AE        | Chromogranin B (secretogranin 1)                          |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
| 20p11.2              | AE        | Transglutaminase 3  |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
| 20q                  | deletion  |   |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      | 22     | 7  |  |
|                      | insertion |   |                                 | T2NO                              | CGH            |        | 22 |  |
|                      | deletion  |   |                                 | N/A, 17 malignant tumor, 1 benign | CGH, FISH, PCR |        | 2  |  |
| 20cen-q22            | deletion  |   |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      |        | 7  |  |
| 20q11.2              | UR        | FLS353; Chromosome 20 open reading frame 1; unknown       |                                 | Mets, local, BPH, PIN, norm       | GC             |        | 5  |  |
| 20q12-q13            | AE        | Phospholipid transfer protein (PLTP)                      |                                 | GS5-10, BPH                       | GC             |        | 11 |  |
| 20q13.1              | UR        | MYBL2, v-myb myeloblastosis viral oncogene                |                                 | Mets, local, BPH, PIN, norm       | GC             |        | 5  |  |
| 20q13.11             | AE        | Ubiquitin carrier protein EC-2                            |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
| 20q13.2-q13.3        | insertion | CYP24 , ZNF217 and NABC1; (in breast cancer)              | possible oncogene               | T2NO                              | CGH            |        | 22 |  |
| <b>Chromosome 21</b> |           |   |                                 |                                   |                |        |    |  |
| 21q22                | AE        | Collagen, type VI, alpha 1H2BFS;                          |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
|                      | UR        | H2B Histone, family member 5                              |                                 | GS5-9, normal                     | GC             |        | 12 |  |
| 21q22.13             | UR        | SIM2; single-minded homolog 2 (Drosophila)                |                                 | GS5-9, BPH                        | GC             |        | 12 |  |
| 21q22.13-22.2        | AE        | KCNJ6 (potassium inwardly rectifying channel, J, mem 6).  |                                 | GS5-10, BPH                       | GC             |        | 11 |  |
| <b>Chromosome 22</b> |           |   |                                 |                                   |                |        |    |  |
| 22q                  | deletion  |   |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      | 46     | 7  |  |
| 22q12.3              | DR        | TIMP3(tissue inhibitor of metalloproteinase 3             |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
| 22q13                | deletion  |   |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      |        | 7  |  |
|                      | AE        | Thiosulfate sulfurtransferase (rhodanese)                 |                                 | GS5-10, BPH                       | GC             |        | 11 |  |
| 22q13.31             | UR        | NBK apoptotic inducer protein                             |                                 | GG4/5, BPH                        | GC             | 100    | 8  |  |
| <b>X Chromosome</b>  |           |   |                                 |                                   |                |        |    |  |
| Xp                   | insertion |   |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      | 24     | 7  |  |
|                      | insertion |   |                                 | GS5-10                            | CGH            | 16     | 1  |  |
| Xp11.23              | DR        | PLP2 (proteolipid protein 2[colonic epithelium enriched]) |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
| Xpter-xp21           | insertion |   |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      |        | 7  |  |
| Xp21.1               | DR        | SRPX (sushi-repeat-containing protein, X chromosome).     |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
|                      | AE        | Cytochrome b-245, beta polypeptide                        |                                 | GS5-10, BPH                       | GC             |        | 11 |  |
| Xp21.13              | AE        | Thioredoxin peroxidase (antioxidant enzyme)               |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
| Xp22.2               | DR        | GPM6B (glycoprotein M6B)                                  |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
|                      | AE        | GPM6B (glycoprotein M6B)                                  |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
| Xp22.3               | AE        | Transducin (beta)-lie 1                                   |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
| Xp22.32              | UR        | SLC25A6/solute carrier family 25, member A6               |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
| Xq                   | insertion |   |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      | 35     | 7  |  |
|                      | insertion |   |                                 | GS5-10                            | CGH            | 23     | 1  |  |
| Xq12                 | insertion | Androgen Receptor ;                                       |                                 | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH,     |        | 7  |  |
|                      | AE        | nuclear transcription factorEphrin-B1 (EFNB1)             |                                 |                                   | IH             | 50, 51 |    |  |
|                      | insertion | Androgen Receptor ;                                       | metastases & hormone refractory | Prim, Recur, Mets, vs BPH         | FISH TMA       | 20     | 13 |  |
|                      | LOH       | Androgen Receptor ;                                       |                                 | Prim, Mets (D2), norm, cell line  | PCR            |        | 52 |  |
| Xq12-q13             | insertion |   | possible oncogene               | GS5-10                            | CGH            |        | 1  |  |
|                      | insertion |   | Found in metastses only         | GS5-10                            | CGH            | 2 /.15 | 1  |  |
| Xq13.1               | UR        | GJB1/gap junction protein                                 |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
| Xcen-q13             | insertion |   | Hormone refractory tumors only  | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      | 100    | 7  |  |
| Xq23-qter            | deletion  |   | Hormone refractory tumors only  | T1-4,Nx,Mx,0,1 vs norm            | CGH& FISH      | 100    | 7  |  |
| Xq21.3               |           | Pseudogene of PKCi?                                       |                                 |                                   | FISH           |        | 4  |  |
| Xq21.33-q22.3        | UR        | TMSNB/NB thymosin b.                                      |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |
| Xq26-q25             | AE        | COVA 1(cytosolic ovarian carcinoma antigen 1)             |                                 | GS5-10, BPH,                      | GC             | 100    | 11 |  |
| Xq28                 | AE        | Glucose-6-phosphate dehydrogenase G6PD                    |                                 | GS5-10, BPH,                      | GC             |        | 11 |  |
| <b>Y Chromosome</b>  |           |   |                                 |                                   |                |        |    |  |
| Y                    | deletion  |   |                                 | GS5-10                            | CGH            | 16     | 1  |  |
|                      | deletion  |   |                                 | N/A, 17malinant tumor, 1 benign   | CGH,FISH,PCR   |        | 2  |  |
| Yp                   | UR        | SLC25A6/solute carrier family 25, member A6               |                                 | GG4/5, BPH,                       | GC             | 100    | 8  |  |