Supplementary Materials to

Robust biomarker screening from gene expression data by stable machine learning-recursive feature elimination methods (Table 5)

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1. Existing literature checking

Table 1: The literature supports for the 15 screened biomarker genes of HGSOC.

Gene symbol	ENTREZID	Gene name	Literature verification
TSPAN8	7103	Tetraspanin 8	TSPAN8 is identified as the hub factor associated with the progression of HGSOC by a series of bioinformatics analyses [1].
CRABP2	1382	Cellular retinoic acid binding protein 2	CRABP2 is a novel biomarker and potential therapeutic target for HGSOC [2].
WDR17	116966	WD repeat domain 17	Missense and synonymous mutations in WDR17 have been occasionally reported in ovary carcinoma [3].
ALDH1A1	216	Aldehyde dehydrogenase 1 family member A1	ALDH1A1 is a possible stemness marker in HGSOC [4].
ALDH1A2	8854	Aldehyde dehydrogenase 1 family member A2	Stem cells express proteins including ALDH1A2 have been observed in the ovarian surface epithelium [5].
CENPF	1063	Centromere protein F	CENPF expression has been associated with cell cycle progression, and malignancy through FOXM1 [6].
KRT7	3855	Keratin 7	KRT7 is one of the known epithelial HGSOC markers [7].
LAMA2	3908	Laminin subunit alpha 2	The interactions with the highest increase in stress-high tumors were related to epithelial-mesenchymal transition (EMT)-high subtype of HGSOC with poor prognosis. It has been observed significantly higher scores for interactions related to laminins LAMA2 that bind to integrin receptors. [8].
HBB	3043	Hemoglobin subunit beta	-
RUNX1T1	862	RUNX1 Partner transcriptional co-repressor 1	-
SESN1	27244	Sestrin 1	_
VGLL1	51442	Vestigial like family member 1	-
VWA3B	200403	Von Willebrand factor A domain containing 3B	_
LOC101928635	_	_	_

^{-:} No literature support so far.

References

- [1] H. Liu, L. Zhou, H. Cheng, S. Wang, W. Luan, E. Cai, R. Ma, X. Ye, H. Cui, Y. Li, et al., Characterization of candidate factors associated with the metastasis and progression of high grade serous ovarian cancer (2021). Doi: 10.21203/rs.3.rs-497718/v1.
- [2] Y. Feng, M. Gillette, E. Kuhn, D. Klinkebiel, M. A. Mitchell, K. Doberstein, D. Chaves-Moreira, S. Sato, H. Xu, B. Bomwell, et al., Abstract b27: Cellular retinoic acid binding protein 2 (crabp2) is a novel biomarker and potential therapeutic target for high-grade serous ovarian carcinomas (2020). Doi: 1557-3265.ovca19-b27.
- [3] D. R. Stewart, A. Pemov, P. Van Loo, E. Beert, H. Brems, R. Sciot, K. Claes, E. Pak, A. Dutra, C.-C. Richard Lee, et al., Mitotic recombination of chromosome arm 17q as a cause of loss of heterozygosity of nf1 in neurofibromatosis type 1-associated glomus tumors, Genes. Chromosomes Cancer 51 (2012) 429–437. Doi: 10.1002/gcc.21928.

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- [4] K. K. Colanglo, et al., Sox2, bmi1, c-myc and aldh1a1 as possible stemness markers in high-grade serous ovarian cancer and their potential clinical predictive value (2021). Doi: 202112144263.
- [5] N. Ahmed, E. Kadife, A. Raza, M. Short, P. T. Jubinsky, G. Kannourakis, Ovarian cancer, cancer stem cells and current treatment strategies: A potential role of magmas in the current treatment methods, Cells 9 (2020) 719. Doi: 10.3390/cells9030719.
- [6] P. N. Yeganeh, C. Richardson, Z. Bahrani-Mostafavi, D. L. Tait, M. T. Mostafavi, Dysregulation of akt3 along with a small panel of mrnas stratifies high-grade serous ovarian cancer from both normal epithelia and benign tumor tissues, Genes & cancer 8 (2017) 784. Doi: 10.3390/cells9030719.
- [7] F. Coscia, K. Watters, M. Curtis, M. Eckert, C. Chiang, S. Tyanova, A. Montag, R. Lastra, E. Lengyel, M. Mann, Integrative proteomic profiling of ovarian cancer cell lines reveals precursor cell associated proteins and functional status, Nat Commun 7 (2016) 1–14. Doi: 10.1038/ncomms12645.
- [8] K. Zhang, E. P. Erkan, J. Dai, N. Andersson, K. Kaipio, T. Lamminen, N. Mansuri, K. Huhtinen, O. Carpén, J. Hynninen, et al., Analysis of single-cell rna-seq data from ovarian cancer samples before and after chemotherapy links stress-related transcriptional profile with chemotherapy resistance, bioRxiv (2020). Doi: 10.1101/2020.06.06.138362.