



## ASO Author Reflections: Tending Towards a Personalized Medicine for Colorectal Carcinomatosis by Adding the RAS Mutation Status in the Workup for CRS and HIPEC

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### PAST

The cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) for colorectal peritoneal metastases (PM) has demonstrable survival benefits. However, the morbidity and the likelihood of an early relapse with consequent low survival rates have been high. Appropriate patient selection is a key factor and under constant inquiry. Until now, prognosis has only been assessed using clinical-pathologic factors. These predictors and the preoperative peritoneal cancer index (PCI) were combined into a clinical score called the Peritoneal Surface Disease Severity Score (PSDSS) described by Pelz et al.,<sup>1</sup> in an attempt to offer greater potential long-term survival after CRS + HIPEC. This score was validated in a large, multicentre cohort and in a meta-analysis and has become the most recognized and widely used clinical score for predicting patient survival.<sup>2,3</sup> However, it does not reflect the biological behaviour of the tumour being a “corner stone” in a personalized oncologic management.

### PRESENT

PSDSS is based on preoperative clinic-pathological features, but it does not consider any molecular characteristics of the treated tumour, such as the *RAS* mutational status, which is a well-known and significant predictor of survival. By associating the *RAS* mutational status to PSDSS in a new score, RAS-PSDSS, the former PSDSS is outperformed by ensuring greater survival predictability in our cohort study as well as in the multicentre, validation cohort.<sup>4</sup> Recently, the predictor score, BIOSCOPE, has been published with a similar aim by also introducing the *RAS/RAF* mutations in the biological profiling.<sup>5</sup> RAS-PSDSS and BIOSCOPE, both having been validated, have shown that the association of clinic-pathological factors to biological features could improve the workup and the selection criteria for CRS and HIPEC in colorectal peritoneal carcinomatosis. However, there are two limitations of the BIOSCOPE score to be considered: the necessity of a previous surgery to determine the pTNM and the determination of *RAF* mutation status was only described in 20 of 524 analysed patients.

### FUTURE

The RAS-PSDSS score is the first score for selecting patients with primary and recurrent peritoneal disease from colorectal cancer to undergo CRS + HIPEC that includes biological features.<sup>4</sup> However, the determination of *RAS* mutations is only a very limited vision in the field of tumour biology. In the not too distant future, we will routinely use different tools, such as proteomics, RNA sequencing, and splicing machinery, which today are the most important lines in cancer research. They will provide individual tumour profiles matching tumour and patient features indicating the best treatment for each case.

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ASO Author Reflections is a brief invited commentary on the article, “*RAS mutation decreases overall survival after optimal cytoreductive surgery and hyperthermic intraperitoneal chemotherapy of colorectal peritoneal metastasis: a modification proposal of the peritoneal surface disease severity score.*” Ann Surg Oncol. 2019.

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First Received: 5 April 2019;  
Published Online: 19 April 2019

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**DISCLOSURE** The authors have no conflicts of interest to disclose.

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