


Phenotypic plasticity and partial EMT underlie local invasion and distant metastasis in colon cancer

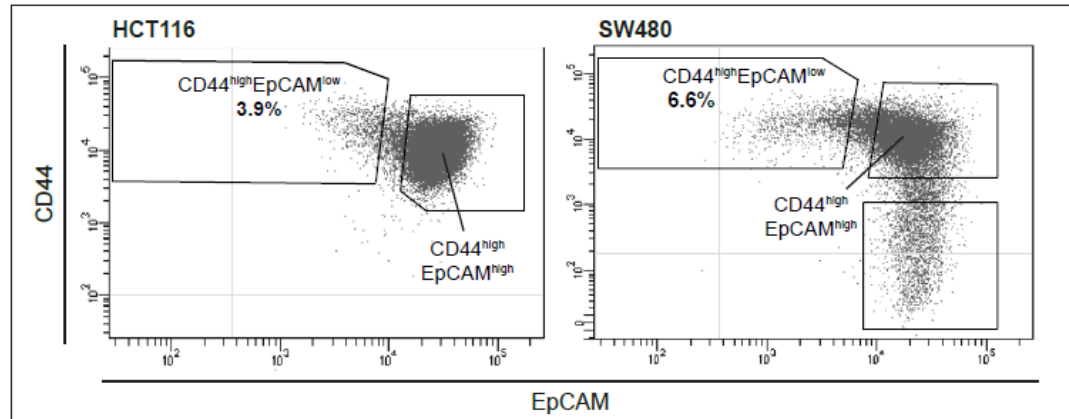
Andrea Sacchetti, Miriam Teeuwssen, Mathijs Verhagen, Rosalie Joosten, Alem Gusinac, Martin M. Watson, Roberto Stabile, Won Kyu Kim, Inge Ubink, Harmen J. G. van Werken, Arianna Fumagalli, Madelon Paauwe, Jacco van Rheenen, Owen Sansom, Onno Kranenburg,  Riccardo Fodde

Emerging Technologies in Single Cell Research
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Mathijs Verhagen, PhD-student



Common colon cancer cell lines encompass a CD44^{high}EpCAM^{low} subpopulation with mesenchymal and highly motile and invasive features

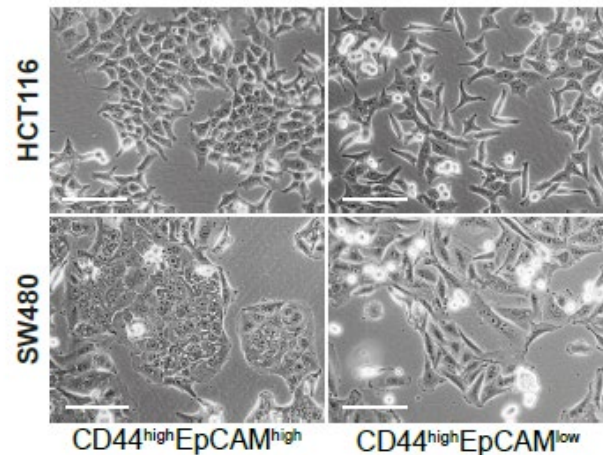
FACS



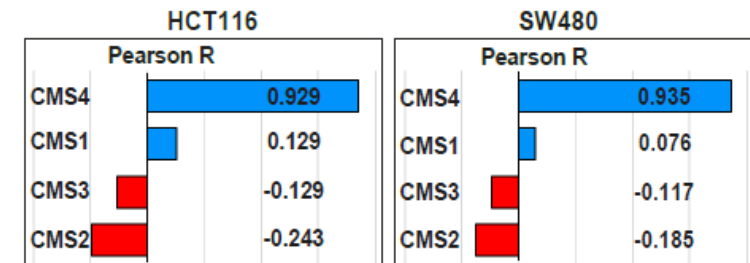
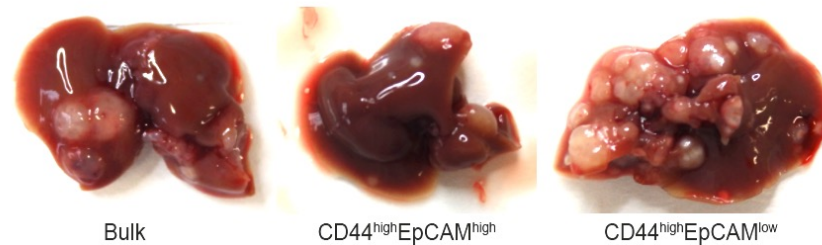
Bulk RNAseq

The consensus molecular subtypes of colorectal cancer

	CMS1 MSI immune	CMS2 Canonical	CMS3 Metabolic	CMS4 Mesenchymal
	14%	37%	13%	23%
MSI, CIMP high, hypermutation		SCNA high	Mixed MSI status, SCNA low, CIMP low	SCNA high
<i>BRAF</i> mutations			<i>KRAS</i> mutations	
Immune infiltration and activation		WNT and MYC activation	Metabolic deregulation	Stromal infiltration, TGF- β activation, angiogenesis
Worse survival after relapse				Worse relapse-free and overall survival

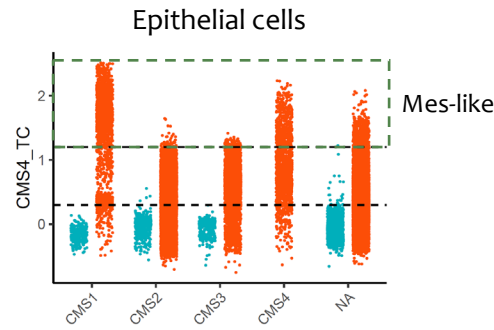
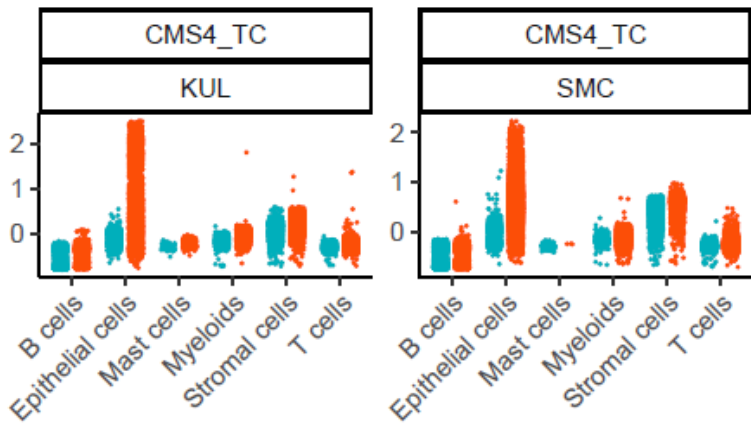


HCT116 spleen injection

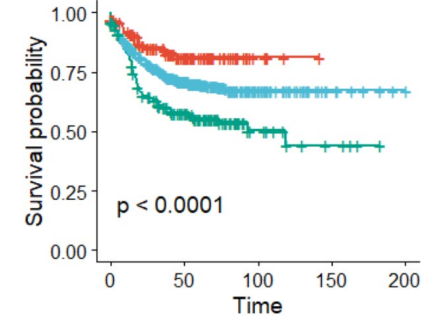
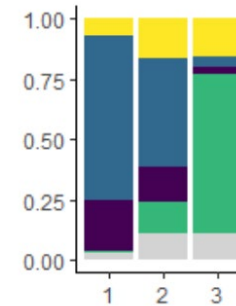
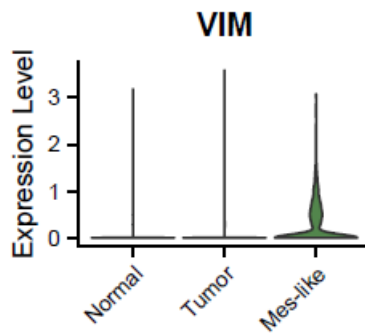
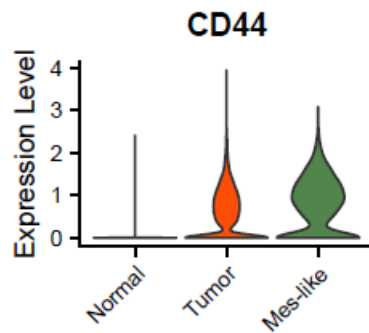
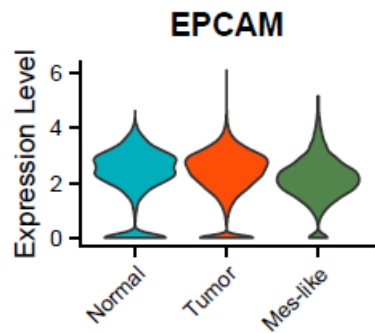
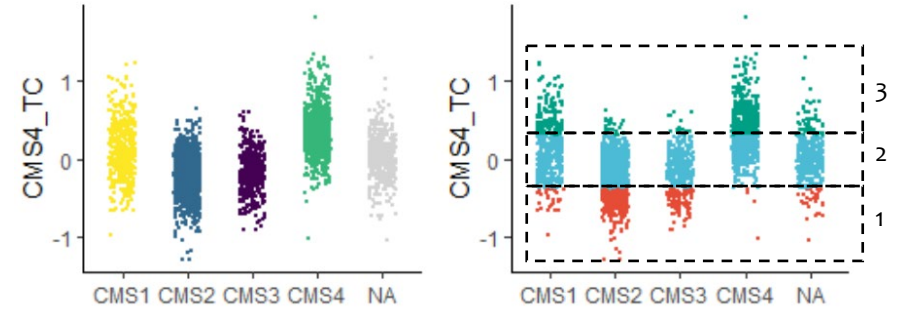


Identification of Epcam^{low} cells in primary colorectal tumors and association with survival

Single cell RNAseq of N = 22 CRC patients
(Lee et al. Nat. Genetics 2020)



Bulk RNAseq of N = 3232 tumors
(Guinney et al. Nat. Medicine 2015)



Single cell RNA seq analysis of HCT116 reveals partial EMT cells where the two populations cross

