REFERENCES

Alfonso, A. F., & Al-Rubeai, M. (2011). Flow Cytometry. *Comprehensive Biotechnology*, 541–560. https://doi.org/10.1016/B978-0-444-64046-8.00048-3

Alves Martins, B. A., de Bulhões, G. F., Cavalcanti, I. N., Martins, M. M., de Oliveira, P. G., & Martins, A. M. A. (2019). Biomarkers in Colorectal Cancer: The Role of Translational Proteomics Research. *Frontiers in Oncology*, *9*, 1284. https://doi.org/10.3389/FONC.2019.01284/BIBTEX

American Cancer Society. (2020). *Colorectal Cancer Facts & Figures 2020-2022*. American Cancer Society. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/colorectal-cancer-facts-and-figures/colorectal-cancer-facts-and-figures-2020-2022.pdf

Angell, T. E., Lechner, M. G., Smith, A. M., Martin, S. E., Groshen, S. G., Maceri, D. R., Singer, P. A., & Epstein, A. L. (2016). Circulating Myeloid-Derived Suppressor Cells Predict Differentiated Thyroid Cancer Diagnosis and Extent. *Thyroid*, *26*(3), 381. https://doi.org/10.1089/THY.2015.0289

Diaz-Montero, C. M., Salem, M. L., Nishimura, M. I., Garrett-Mayer, E., Cole, D. J., & Montero, A. J. (2009). Increased circulating myeloid-derived suppressor cells correlate with clinical cancer stage, metastatic tumor burden, and doxorubicin–cyclophosphamide chemotherapy. *Cancer Immunology, Immunotherapy*, *58*(1), 49. https://doi.org/10.1007/S00262-008-0523-4

du Prel, J. B., Hommel, G., Röhrig, B., & Blettner, M. (2009). Confidence interval or p-value?: part 4 of a series on evaluation of scientific publications. *Deutsches Arzteblatt International*, *106*(19), 335–339. https://doi.org/10.3238/ARZTEBL.2009.0335

Faber, J., & Fonseca, L. M. (2014). How sample size influences research outcomes. *Dental press journal of orthodontics*, *19*, 27-29.

Fernandez-Rozadilla, C., Simões, A. R., Lleonart, M. E., Carnero, A., & Carracedo, Á. (2020). Tumor Profiling at the Service of Cancer Therapy. *Frontiers in Oncology*, *10*. https://doi.org/10.3389/FONC.2020.595613

Fleming, V., Hu, X., Weber, R., Nagibin, V., Groth, C., Altevogt, P., Utikal, J., & Umansky, V. (2018). Targeting myeloid-derived suppressor cells to bypass tumor-induced immunosuppression. *Frontiers in Immunology*, *9*(MAR), 398. https://doi.org/10.3389/FIMMU.2018.00398/BIBTEX

Gabrilovich, D. I. (2017). Myeloid-derived suppressor cells. *Cancer Immunology Research*, *5*(1), 3. https://doi.org/10.1158/2326-6066.CIR-16-0297

Globocan. (2020). *CRC Indonesia Fact Sheets*. https://gco.iarc.fr/today/data/factsheets/populations/360-indonesia-fact-sheets.pdf

Gonda, K., Shibata, M., Ohtake, T., Matsumoto, Y., Tachibana, K., Abe, N., Ohto, H., Sakurai, K., & Takenoshita, S. (2017). Myeloid-derived suppressor cells are increased and correlated with type 2 immune responses, malnutrition, inflammation, and poor prognosis in patients with breast cancer. *Oncology Letters*, *14*(2), 1766–1774. https://doi.org/10.3892/OL.2017.6305

Jackson, K., Milner, R. J., Doty, A., Hutchison, S., Cortes-Hinojosa, G., Riva, A., Sahay, B., Lejeune, A., & Bechtel, S. (2021). Analysis of canine myeloid-derived suppressor cells (MDSCs) utilizing fluorescence-activated cell sorting, RNA protection mediums to yield quality RNA for single-cell RNA sequencing. *Veterinary Immunology and Immunopathology*, *231*, 110144. https://doi.org/10.1016/J.VETIMM.2020.110144

Kang, H. Y., Choe, E. K., Park, K. J., & Lee, Y. (2017). Factors requiring adjustment in the interpretation of serum Carcinoembryonic antigen: a cross-sectional study of 18,131 healthy nonsmokers. *Gastroenterology Research and Practice*, *2017*.

Kotsakis, A., Harasymczuk, M., Schilling, B., Georgoulias, V., Argiris, A., & Whiteside, T. L. (2012). Myeloid-derived suppressor cell measurements in fresh and cryopreserved blood samples. *Journal of immunological methods*, *381*(1-2), 14-22.

Krzyszczyk, P., Acevedo, A., Davidoff, E. J., Timmins, L. M., Marrero-Berrios, I., Patel, M., White, C., Lowe, C., Sherba, J. J., Hartmanshenn, C., O'Neill, K. M., Balter, M. L., Fritz, Z. R., Androulakis, I. P., Schloss, R. S., & Yarmush, M. L. (2018). The growing role of precision and personalized medicine for cancer treatment. *Technology*, *6*(3–4), 79. https://doi.org/10.1142/S2339547818300020

Kumar, V., Patel, S., Tcyganov, E., & Gabrilovich, D. I. (2016). The nature of myeloid-derived suppressor cells in the tumor microenvironment. *Trends in Immunology*, *37*(3), 208. https://doi.org/10.1016/J.IT.2016.01.004

Limagne, E., Euvrard, R., Thibaudin, M., Rébé, C., Derangère, V., Chevriaux, A., Boidot, R., Végran, F., Bonnefoy, N., Vincent, J., Bengrine-Lefevre, L., Ladoire, S., Delmas, D., Apetoh, L., & Ghiringhelli, F. (2016). Accumulation of MDSC and Th17 Cells in Patients with Metastatic Colorectal Cancer Predicts the Efficacy of a FOLFOX-Bevacizumab Drug Treatment Regimen. *Cancer Research*, *76*(18), 5241–5252. https://doi.org/10.1158/0008-5472.CAN-15-3164

Lindau, D., Gielen, P., Kroesen, M., Wesseling, P., & Adema, G. J. (2013). The immunosuppressive tumour network: myeloid-derived suppressor cells, regulatory T cells and natural killer T cells. *Immunology*, *138*(2), 105. https://doi.org/10.1111/IMM.12036

Łukaszewicz-Zając, M., & Mroczko, B. (2021). Circulating Biomarkers of Colorectal Cancer (CRC)—Their Utility in Diagnosis and Prognosis. *Journal of clinical medicine*, *10*(11), 2391.

Ma, X., Wang, M., Yin, T., Zhao, Y., & Wei, X. (2019). Myeloid-Derived Suppressor Cells Promote Metastasis in Breast Cancer After the Stress of Operative Removal of the Primary Cancer. *Frontiers in Oncology*, *9*, 855. https://doi.org/10.3389/FONC.2019.00855/BIBTEX

Maravic, Z., Rawicka, I., Benedict, A., Wyrwicz, L., Horvath, A., Fotaki, V., Carrato, A., Borras, J. M., Ruiz-Casado, A., Petrányi, A., Lemmens, L., Espín-Basany, E., & Stanisic Trenevski, J. (2020). A European survey on the insights of patients living with metastatic colorectal cancer: the patient journey before, during and after diagnosis-an Eastern European perspective. *ESMO open*, *5*(5), e000850.

Martins, B. A. A., De Bulhões, G. F., Cavalcanti, I. N., Martins, M. M., De Oliveira, P. G., & Martins, A. M. A. (2019). Biomarkers in colorectal cancer: the role of translational proteomics research. *Frontiers in Oncology*, *9*.

Nicholson, B. D., Shinkins, B., Pathiraja, I., Roberts, N. W., James, T. J., Mallett, S., Perera, R., Primrose, J. N., & Mant, D. (2015). Blood CEA levels for detecting recurrent colorectal cancer. *The Cochrane Database of Systematic Reviews*, *2015*(12). https://doi.org/10.1002/14651858.CD011134.PUB2

Sepulveda, A. R., Hamilton, S. R., Allegra, C. J., Grody, W., Cushman-Vokoun, A. M., Funkhouser, W. K., Kopetz, S. E., Lieu, C., Lindor, N. M., Minsky, B. D., Monzon, F. A., Sargent, D. J., Singh, V. M., Willis, J., Clark, J., Colasacco, C., Rumble, R. B., Temple-Smolkin, R., Ventura, C. B., & Nowak, J. A. (2017). Molecular biomarkers for the evaluation of colorectal cancer: Guideline from The American Society for Clinical Pathology, College of American Pathologists, Association for

Molecular Pathology, and the American Society of Clinical Oncology. *Journal of Clinical Oncology*, *35*(13), 1453–1496. https://doi.org/10.1200/JCO.2016.71.9807

Sieminska, I., & Baran, J. (2020). Myeloid-Derived Suppressor Cells in Colorectal Cancer. *Frontiers in Immunology*, *11*, 1526. https://doi.org/10.3389/FIMMU.2020.01526

Xi, Y., & Xu, P. (2021). Global colorectal cancer burden in 2020 and projections to 2040. *Translational Oncology*, *14*(10), 101174. https://doi.org/10.1016/J.TRANON.2021.101174

Yang, Y., Li, C., Liu, T., Dai, X., & Bazhin, A. v. (2020). Myeloid-Derived Suppressor Cells in Tumors: From Mechanisms to Antigen Specificity and Microenvironmental Regulation. *Frontiers in Immunology*, *11*, 1371. https://doi.org/10.3389/FIMMU.2020.01371/BIBTEX

Yang, Z., Guo, J., Weng, L., Tang, W., Jin, S., & Ma, W. (2020). Myeloid-derived suppressor cells—new and exciting players in lung cancer. *Journal of Hematology & Oncology*, *13*(1). https://doi.org/10.1186/S13045-020-0843-1

APPENDICES

Appendix 1. MDSC Subpopulation at Baseline (D0) Level in Healthy (H) Donors.

No	M-MDSC (%)	PMN-MDSC (%)
1	1.77	0.05
2	0.15	0.00
3	0.68	0.00
4	1.56	0.19
5	0.38	0.20
6	0.00	0.00
7	0.00	0.06
8	0.85	0.07
9	0.95	0.13
10	1.02	0.09
11	0.00	0.30
Average	0.67	0.10

Appendix 2. MDSC Subpopulation Level at D0, D14 & 100% in Colorectal Cancer Patients.

No	D0		D14		100%	
	M-MDSC (%)	PMN-MDSC (%)	M-MDSC (%)	PMN-MDSC (%)	M-MDSC (%)	PMN-MDSC (%)
1	0.17	0.38	0.00	0.18	0.64	0.23
2	2.20	0.59	0.41	0.08	0.73	0.45
3	0.17	0.14	0.00	0.30	0.00	0.34
4	0.00	0.26	0.00	0.28	0.29	0.16
5	0.00	0.12	0.09	0.69	0.05	0.00
6	3.03	0.38	0.14	0.15	0.10	0.16
7	0.22	0.34	0.08	0.06	0.32	0.15
8	0.00	0.90	0.43	0.12	0.08	0.05
9	0.10	0.18	0.00	0.10	0.07	0.31
10	0.00	0.88	0.09	0.42	1.19	0.37
11	0.34	0.30	0.20	0.13	0.18	0.05
12	0.30	0.42	0.50	0.05	0.10	0.08
13	0.18	0.34	0.51	0.13	0.07	0.47
14	0.22	0.00	2.94	0.21	0.28	0.02
15	0.00	0.18	0.08	0.06	0.00	0.55
16	0.30	0.37	0.11	0.00	0.70	0.13
17	0.65	0.21	0.59	0.09	0.29	0.13
Average	0.49	0.35	0.36	0.18	0.30	0.21

Appendix 3. CEA Level at D0, D14 & 100% in Colorectal Cancer Patients.

No	CEA Level		
	D0 (ng/mL)	D14 (ng/mL)	100% (ng/mL)
1	<0.50	<0.50	0.79
2	>2000	>2000	37.47
3	263.8	344.5	11.69
4	<0.50	0.58	1.20
5	1.96	3.87	4.28
6	<0.5	<0.5	1.09
7	0.64	0.83	1.45
8	<0.5	<0.5	0.87
9	0.82	1.19	1.79
10	<0.5	<0.5	0.74
11	15.52	7.03	1.26
12	130.6	63.88	2.89
13	2.3	2.85	3.51
14	87.9	10.1	12.74
15	0.75	0.85	1.94
16	0.5	0.76	6.92
17	1.73	0.91	1.06
Average	147.59	143.49	5.39