Elena TENEDINI
Department of Biomedical Science, University of Modena e Reggio Emilia, Modena, Italy
Email: 16795@unimore.it tagliafico.enrico@unimore.it

Identification of a molecular signature predictive of refractoriness in Acute Myeloid Leukemia

Acute Myeloid Leukemia (AML) blast cells are immature committed myeloid cells unable to spontaneously undergo terminal maturation, characterized by heterogeneous sensitivity to natural differentiation inducers. No data are available so far by which infer the AML's response to differentiating therapy. Thus, we have initially profiled by GeneChip® arrays the gene expression of several AML cell lines: they derived by the original blast cell populations and are still characterized by the same immunophenotype, retain a different sensitivity or resistance to ATRA and VD and never undergo spontaneously terminal maturation. Here we show that differences exist by which predict the cell line differentiation fate. Next we constructed a signature able to predict resistance or sensitivity to the differentiation induction and tested it, using a TaqMan platform, for its capability to predict the in-vitro response of 28 VD or ATRA treated freshly isolated AML blast cell populations. Finally, by a meta-analysis of public available microarray data we demonstrated that our signature, that was formerly designed to identify differentiation therapy resistant populations, turned out to be a good classifier for clusters with cytogenetically and molecularly defined lesions that are known to have poor prognostic significance.

Enrico Tagliafico[1], Elena Tenedini[1], Rossella Manfredini[1], Francesco Ferrari[1], Enrica Roncaglia[1], Luca Fantoni[1], Alexis Grande[1], Sandra Parenti[1], Tommaso Zanocco-Marani[1], Claudia Gemelli[1], Roberta Zini[1], Simona Salati[1], Elisa Bianchi[1], Silvio Bicciato[2], Giorgina Specchia[3], Giovanni Martinelli[4], Michele Baccarani[4], Pier Paolo Piccaluga[4], Umberto Torelli[1], Sergio Ferrari[1, 5]
[1]. Università di Modena e Reggio Emilia, Dipartimento di Scienze Biomediche [2]. Università di Padova, Dipartimento di Processi Chimici dell'Ingegneria [3]. Università di Foggia, Dipartimento di Ematologia [4]. Università di Bologna, Istituto di Ematologia ed Oncologia Medica "L. e A. Seragnoli"