O507
2-hour Oral Session
Frontiers in tuberculosis

RANK expression by monocytes marks active disease/inflammation during tuberculosis

Marco Pio La Manna[1], Paola DI Carlo*[2], Antonio Cascio[3], Valentina Orlando[1], Francesco Dieli[4], Nadia Caccamo[1]

[1]*Central Laboratory of Advanced Diagnosis and Biomedical Reserch (Cladibior), Department of Biopatology, Palermo, Italy, Palermo, Italy*

[2]*University of Palermo, It, Infectious Disease Unit, Health Promotion and Mother Child Care Department, University of Palermo, It, Palermo, Italy*

[3]*University of Palermo, Palermo, Italy*

[4]*Dipartimento DI Biopatologia E Biotecnologie Mediche E Forensi and Central Laboratory of Advanced Diagnosis and Biomedical Research, University of Palermo, Palermo, Italy*

Background: The high grade of phenotype plasticity of monocytes-macrophages, is resumed in two different cell subsets named M1 or M2. Several studies *in vitro* and *in vivo* of microbial infections, showed that, during the early stage of infection, macrophages are polarized toward M1 phenotype that should be protective against pathogen, while during the chronic phase of infection/disease macrophages polarize toward M2 phenotype to avoid damages from a prolonged M1 type activation.

Material/methods: Peripheral blood was obtained from adults with TB disease from the Dipartimento di Medicina Clinica e delle Patologie Emergenti, University Hospital, Palermo. TB-infected patients had microbiological, clinical and radiological findings consistent with active pulmonary TB. All patients were treated in accordance with WHO guidelines. We have analyzed by flow cytometry, monocytes obtained from patients with active tuberculosis (TB) at early phase of disease and during anti mycobacterial therapy, subjects with latent TB and healthy uninfected controls.

Results: Analysis of CD80, CD16, RANK, CD206, CD163, CD123 and CD152 surface markers expression showed no clear cut M1/M2 polarization in all tested groups, but surprisingly we found that patients with active TB disease before treatment had a very high percentage of $RANK^+$ monocytes, while RANK (nuclear factor-Kb) expression was very faint in monocytes from all other experimental groups. Moreover, RANK expression consistently decreased after the onset of efficacy anti tubercular treatment and the analysis were in accordance with the combined microbiological follow-up.

Conclusions: Given that the available *in vitro* diagnostic tests are limited in discriminating subjects with latent or active disease, as well as response to therapy, we speculate that the evaluation of RANK expression on monocytes could represent an additional biomarker useful to make diagnosis of active disease and monitor the response to therapy.