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Nota di contenuto	Editorial: platelets as immune cells in physiology and immunopathology -- Are platelets cells? And if yes, are they immune cells? -- Emerging evidence for platelets as immune and inflammatory effector cells -- The inflammatory role of platelets via their TLRs and Siglec receptors -- Platelets and infection - an emerging role of platelets in viral infection -- Platelets and infections - complex interactions with bacteria -- Breaking the mold: transcription factors in the anucleate platelet and platelet-derived microparticles -- Platelets in inflammation: regulation of leukocyte activities and vascular repair -- Platelets in inflammation and atherogenesis -- Platelet transfusion - the new immunology of an old therapy
Sommario/riassunto	Are platelets cells? (Not everyone agrees, since they are non-nucleate). And if platelets are cells - which all specialists consider at the time being - are they immune cells? The issue that platelets participate in immunity is no longer debated; however, the issue that they are key cells in immunity is challenged. It has even been proposed a couple of

years ago that platelets can present antigen to T-lymphocytes by using their HLA class I molecules. No one has the same functional definition of platelets. The 'Frontiers Research Topic'- coordinators' own view is that platelets are primarily repairing cells, what they do in deploying tools of physiological inflammation. This function is better acknowledged as primary hemostasis, i.e. platelet adherence to injured or wounded vessels, followed by activation, aggregation, and constitution of the initial clot. Platelets would thus repair damaged vascular endothelium; so doing, as they patrol to detect damages, they sense danger along the vascular arborescence. As the latter is immense, platelets get close to tissues, which are not allowed to them under 'physiological' conditions but are readily accessible in pathology. Platelets are equipped with a variety of Pathogen Recognition Receptors such as TLRs; they have a complete signalosome, which is functional until the phosphorylation of NFkB; they have been proved to retro-transcribe RNA and synthesize de novo proteins; etc. Platelets participate to inflammation along the whole spectrum: from physiological (tissue repair, healing) to acute/severe inflammation (as can be seen in e.g. sepsis). In general, platelets engage complex interactions with most infectious pathogens. We propose there to cover those topics - from physiology to pathology, that put platelets within cells that not only take place in-, but also are key players of-, innate immunity. The relation of platelets with adaptive immunity is even more complex. Not everyone is convinced that platelets present antigens; however, platelets influence adaptive immunity since they have mutual interactions with Dendritic cells, Monocytes/Macrophages, and B-lymphocytes (the key players of antigen presentation); they also have mutual interactions with T-lymphocytes, though this issue is less clearly deciphered. We propose to also cover these topics - or to present the forum. There is another issue which is medically relevant - speaking of physiology/physiopathology-: this is fetal maternal incompatibility of platelet specific antigens (the HPA system) and the likely formation of maternal antibodies that often injure the newborn with risks of severe thrombocytopenia and intracranial hemorrhage. We propose an update on this issue as well. Last, platelets are very special because they can be directly therapeutic (by transfusion), even when being offered by a generous blood donor displaying given genetic and phenotypic parameters to a patient/recipient in need, who also displays his/her own genetic and phenotypic parameters, which - for a large part - differ from the donor's ones. Besides immunization - via mechanisms probably close to the fetal maternal platelet incompatibility, but likely not similar -, transfusion has allowed the identification of the tremendous capacity of platelets to mediate inflammation: we propose to conclude the Topics with this item/forum.
