15. A method for determining whether a subject suffering from or predisposed to a disease will respond or is responsive to treatment with a therapeutic agent comprising:

(a) isolating PBMCs/bone-marrow cells from a blood sample obtained from said subject;
(b) incubating said PBMCs/bone-marrow cells at a density of about 100 cells per mm^2 to about 30000 cells per mm^2;
(c) contacting said PBMCs/bone-marrow cells with said therapeutic agent; and
(d) assessing the response of the PBMCs/bone-marrow cells to the therapeutic agent,

wherein a PBMC monolayer or bone-marrow cell monolayer is formed during step (b), wherein natural-occurring cell-cell interactions and membrane integrity are maintained during formation of the monolayer and wherein the disease is a hematologic malignancy or a malignancy of myeloid and/or lymphoid tissue.

16. The method of claim 15, wherein the PBMCs/bone-marrow cells are incubated at a density of about 2000 cells per mm^2.