

# ImmunoTools *multiplex* Award 2015



**Cagatay Günes**, PhD, PD

Leibniz Institute for Age Research, Fritz Lipmann Institute,  
Beutenbergstraße 11, 07745 Jena, Germany

## Cellular Senescence

Induction of cellular senescence is observed in response to stress conditions, such as oncogenic stress or genome instability. There is also increasing evidence that senescent cells accumulate *in vivo* as a result of normal organismal ageing. More recently, it has become evident that clearance of senescent cells is linked to tissue repair processes, as was shown for skin wound healing. On the other side, when the clearance of senescent is flawed, these cells may accumulate and initiate ageing-associated pathologies.

The molecular pathways involved in triggering and/or maintaining the senescent phenotype are not fully understood. As a consequence, the markers currently utilized to detect senescent cells are limited and lack specificity. Thus, identifying senescent cells *in vivo* and *in vitro* has an important diagnostic and therapeutic potential.

Currently, senescent cells are characterized by an irreversible cell cycle arrest and by the expression of the lysosomal beta-galactosidase, known as senescence-associated  $\beta$ -Gal (SA $\beta$ Gal) activity. Cellular senescence is accompanied by secretion of cytokines, growth factors, and extracellular matrix proteases, collectively known as the senescence-associated secretory phenotype (SASP).

To address the physiological role of senescence, it is necessary to develop new markers for the detection and targeting of senescent cells *in vivo*.

ImmunoTools *multiplex* award would be a great opportunity to identify novel markers for senescence. For this purpose, we would like to use non-senescent and senescent cells from the same origin, initially primary human fibroblasts.

## ImmunoTools *multiplex* AWARD for Cagatay Günes

includes free analysis of samples on several antibody arrays with large range of antibodies against human CDs, human cytokines, and others ...