

Immunotoxicology of Silica: Silica activates regulatory T cell

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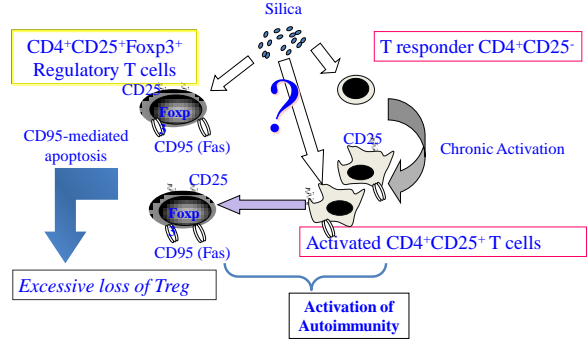
Silica induces pulmonary fibrosis and also autoimmune diseases

Silicosis

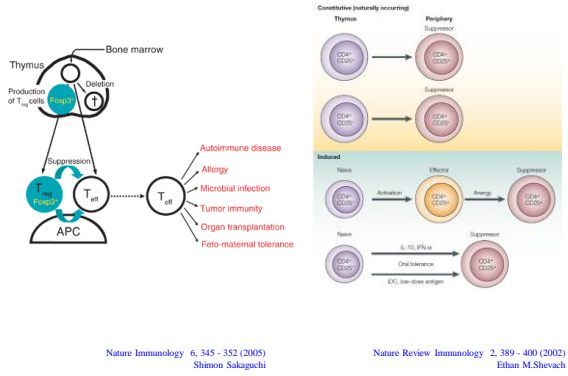
Silica
Grinded silica

Autoimmune diseases
Systemic sclerosis
Rheumatoid arthritis (Caplan's syndrome)
SLE
ANCA-related vasculitis/nephritis

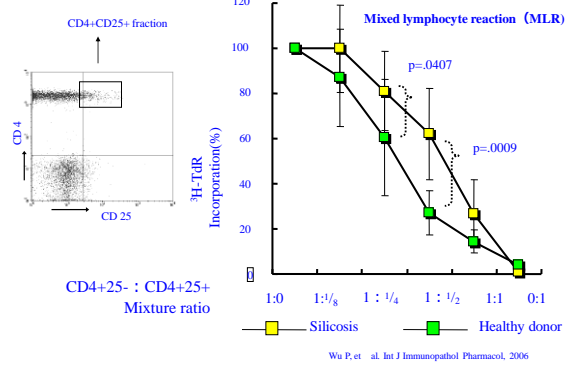
Silica may activates responder T cell and also regulatory T cell



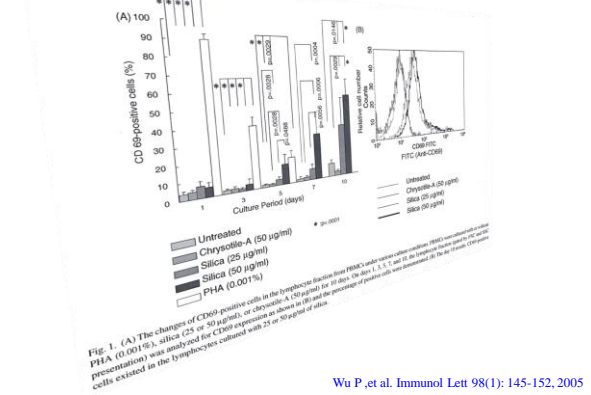
CD4+25+FoxP3+ regulatory T cell



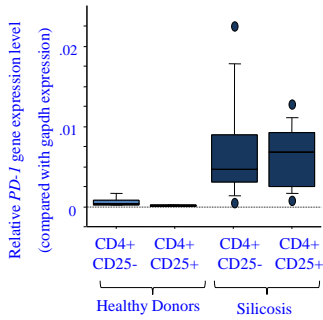
Functional analysis of peripheral CD4+25+ fraction from healthy donors and silicosis



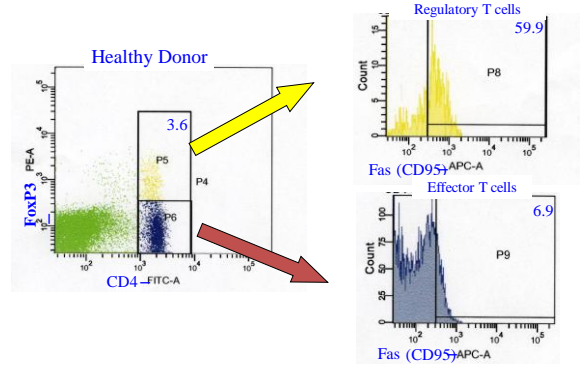
Silica gradually activates peripheral responder T cell



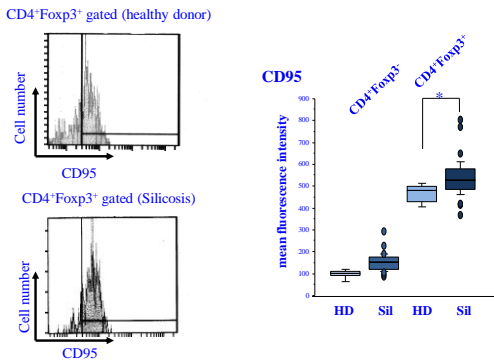
Expression of PD-1 (Activation marker of T cell) in peripheral CD4+25+ or 25- fraction from healthy donor and silicosis



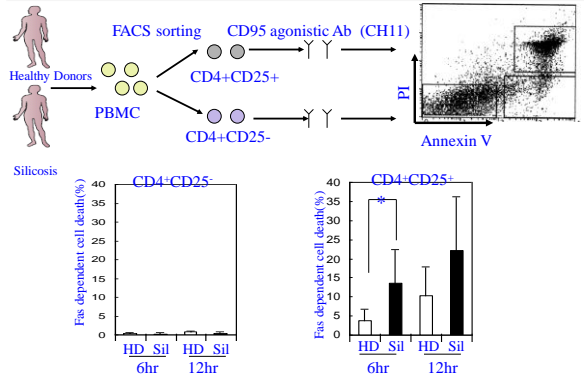
CD95/Fas is expressed higher in Regulatory T cell than responder T cell



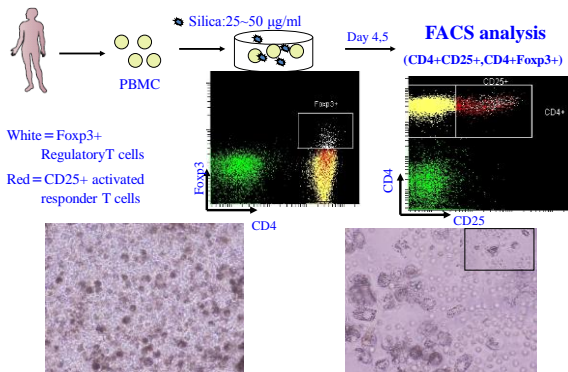
Expression of PD-1 (Activation marker of T cell) in peripheral CD4+25+ or 25- fraction from healthy donor and silicosis



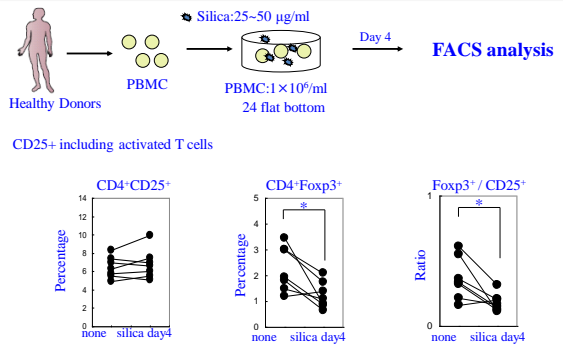
Regulatory T cells from silicosis are highly sensitive to the CD95-mediated apoptosis than those from health donors



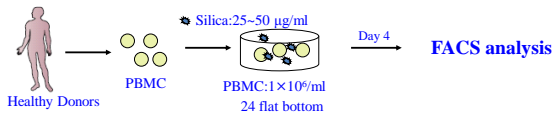
Activated responder T cells due to co-culture with silica enter CD4+25+ fraction



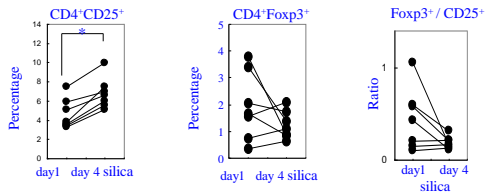
in vitro silica exposure to PBMC causes loss of FoxP3+ regulatory T cells



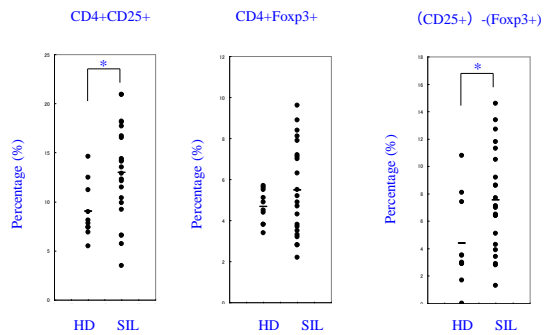
In vitro silica exposure to PBMC causes loss of FoxP3+ regulatory T cells –time course-



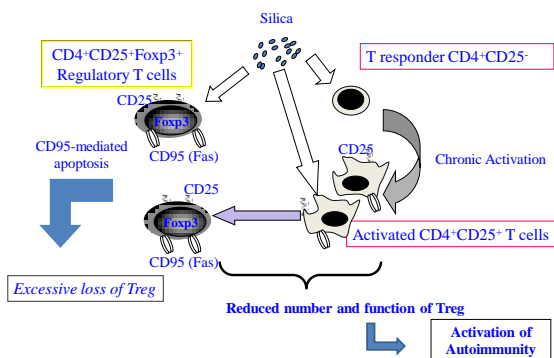
CD25+ including activated T cells



Silicosis patients including higher activated T cells in their peripheral blood



Silica activates both responder and regulatory T cells and causes loss of Treg and reduced regulatory function



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