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The role of periostin in aging process

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Objectives: Periostin, a matricellular protein, has been reported in diverse processes and pathologies in tissue remodeling through the promotion of adhesion, cell survival, cellular dedifferentiation, and fibrogenesis. However, its role in aging process is unknown.

Methods: We analyzed tissues from 2-months and 24-months old wild-type and *Postn* null (*Postn*$^{-/-}$) mice and performed high throughput RNA-Sequencing of kidney tissue in aged mice. The genes showing altered expression were confirmed by qRT-PCR analysis.

Results: At 24-months old *Postn* null mice had preserved kidney tissue and less markers of senescence than wild-type mice. The gross appearance and the kidneys of aged WT mice were bigger and heavier than young WT mice. Serum creatinine levels were also higher in the aged WT mice compared to those in the young WT mice. However, all these changes were diminished in the aged *Postn null* mice; serum creatinine levels were considerably lower in aged *Postn null* mice than in aged WT mice. Apparent tubular atrophic changes, interstitial fibrosis, and collagen fiber deposition which were prominent in the aged WT mice than in the young WT mice, were remarkably alleviated in aged *Postn null* mice. Furthermore, the expressions of periostin were also attenuated in aged *Postn null* mice compared to in aged WT mice. Also, we found that many of the changes in gene expression that occur during the aging process by periostin.

Conclusions: The data obtained in this study should expand our knowledge on the periostin mediated aging and provide molecular mechanism. Periostin inhibition could have protective effects in aging process.