

**PATTERN OF EXPRESSION OF CCN FAMILY PROTEINS IN ACUTE AND CHRONIC WOUNDS – A KEY FACTOR IN WOUND HEALING?**

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**Introduction:** Members of the CCN family, found in the extracellular matrix, are 30-40kDa proteins comprised of cysteine-rich 61(Cyr61/CCN1), connective tissue growth factor (CTGF/CCN2) and nephroblastoma -overexpressed (NOV/CCN3). Collectively they stimulate mitosis, adhesion, apoptosis, extracellular matrix production, growth arrest and migration and regulate angiogenesis. Despite such diverse activity CCN protein function has not been explored in human wound healing.

**Methods:** Samples of normal, acute and chronic wounds were collected. Immunohistochemical staining and real time quantitative RT-PCR was performed. GAPDH was used as the house keeping control. Statistical analysis was performed using the Fisher's exact test.

**Results:** Immunohistochemical staining

CCN protein	Normal skin	Acute wound	Chronic wound
Cyr61	present-strong	unchanged	increased
CTGF	present-weak	decreased	decreased
NOV	present-weak	unchanged	unchanged

Real time quantitative RT-PCR

Cyr61 increased in chronic wounds as compared to acute (ns).

NOV decreased in chronic wounds as compared to acute wounds (ns).

CTGF decreased in chronic wounds: CTGF/GAPDH ratio 0.017(0.0004-0.0457); median (IQR) as compared to acute wounds 0.16 (0.00-5.42) (statistically significant; p<0.002).

**Conclusion:** CCN family members have a differential pattern of expression in normal skin and in wound tissues and therefore may play an important role in wound healing. Further, the lack of CTGF in wound tissues may contribute to the abnormal healing of wounds. This may further suggest that wound healing may be stimulated by manipulating levels of these proteins.