a.) Tenomodulin (TNMD) is a tendon-specific gene marker known to be important for tendon maturation with key implications for the residing tendon stem/progenitor cells as well as for the regulation of endothelial cell migration in chordae tendineae cordis in the heart and in experimental tumour models. The putative signalling in which TNMD participates is just starting to be better understood as well as its potential link to several pathological conditions. Hence we have performed the first systematic review to clearly outline the uncovered function of this gene.

b.) We searched in the PubMed database for articles containing “tenomodulin” or its alternative names and abbreviations. Altogether 146 articles and abstracts have been published covering TNMD since its discovery in 2001 until the end of 2015. After exclusion of papers only available in abstract form and foreign language articles, we can group the remaining 128 full-text publications into four categories; namely into studies looking into functions of TNMD, articles using TNMD as a tendon marker, research observing correlations between TNMD mutations and a variety of diseases, and lastly reviews.

c.) Our analyses provide a solid base on the up-to-date knowledge together with some controversies and critical remarks on the future research perspectives regarding TNMD gene. Firstly, TNMD has been strongly justified as the best tendon and ligament marker in more than 90 different studies. Next, a combination of in vivo and in vitro investigations has revealed its positive role on tendon/ligament cell and tissue functions as well as is negative effect on vessels in specific regions of the heart and in tumour models. Last, we are just starting to comprehend the potential involvement of TNMD in various diseases such as obesity and metabolic syndrome, where TNMD expression is positively correlated to an advanced disease state.

d.) In sum, we systematically summarized the current state of affairs of our knowledge of TNMD gene, protein, expression and functions, but also can urge further studies in order to completely decipher its signalling pathway, contribution to certain pathologies as well as possible development of therapeutic strategies.