Title: **Dermal IgA deposition targeted against Transglutaminase 3 in Dermatitis herpetiformis risk groups**

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Abstract
Dermal granular IgA deposition targeted against transglutaminase (TG) 3 is a characteristic feature of dermatitis herpetiformis (DH), a skin manifestation of celiac disease (CD). Dermal IgA deposition has been reported in some CD subjects without DH, and conflicting results about co-localization of dermal IgA with TG3 beyond DH exist. This study aimed to investigate dermal IgA deposition outside DH, and its co-localizations with TG3.
CD patients, first-degree relatives of DH/CD patients, and controls (DH and dermatological patients) underwent clinical investigations and serum TG3 antibody measurements. Skin biopsies were studied for dermal IgA using two anti-IgA antibodies from different manufacturers (antibody1 and antibody2). Antibody1 was assessed with widefield and confocal microscopy, and antibody2 with confocal microscopy only. Further, IgA-colocalization with TG3 was studied with antibody2.
Dermal IgA deposition with widefield microscopy was detected in one CD patient and in one relative, but neither had skin symptoms nor serum TG3 antibodies. In confocal, IgA deposition was initially not detected with antibody2 antibody in either patient. The results between antibody1 and antibody2 were ambiguous, with antibody1 stain producing results that could be interpreted as IgA. Co-localization of IgA and TG3 was not found. All remaining non-DH subjects were negative in dermal IgA analysis, but serum TG3 antibodies were positive in one relative. All DH controls presented dermal IgA-TG3 co-localization.
This study showed that dermal IgA deposition outside DH is rare. In obscure cases serial sections and staining, with investigation of co-localization of IgA/TG3 is suggested and could be useful in exclusion of DH.