

# ALLERGENICITY OF MAIN BIRCH ALLERGEN rBet v1 AND HIGH PRESSURE TREATMENT

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## BACKGROUND

The aim of our study was to find out the influence of the high pressure on the structural changes and allergenicity of recombinant main birch allergen rBet v1.

## METHODS

We have treated the buffer solutions of rBet v1 by high pressure in range 450-550 MPa for pressure holding times 10 minutes at temperatures 30, 40 and 50°C. The structural changes were studied by circular dichroism CD spectra. The allergenic reaction of the rBet v1 was tested by the Western blot.

## RESULTS

The greatest changes of the structure were found at samples treated by 450 MPa at 30°C. Figure 1.

The samples treated at this temperature at pressure levels 500 and 550 MPa held for 10 minutes did not show any structure changes. Figure 2,3.

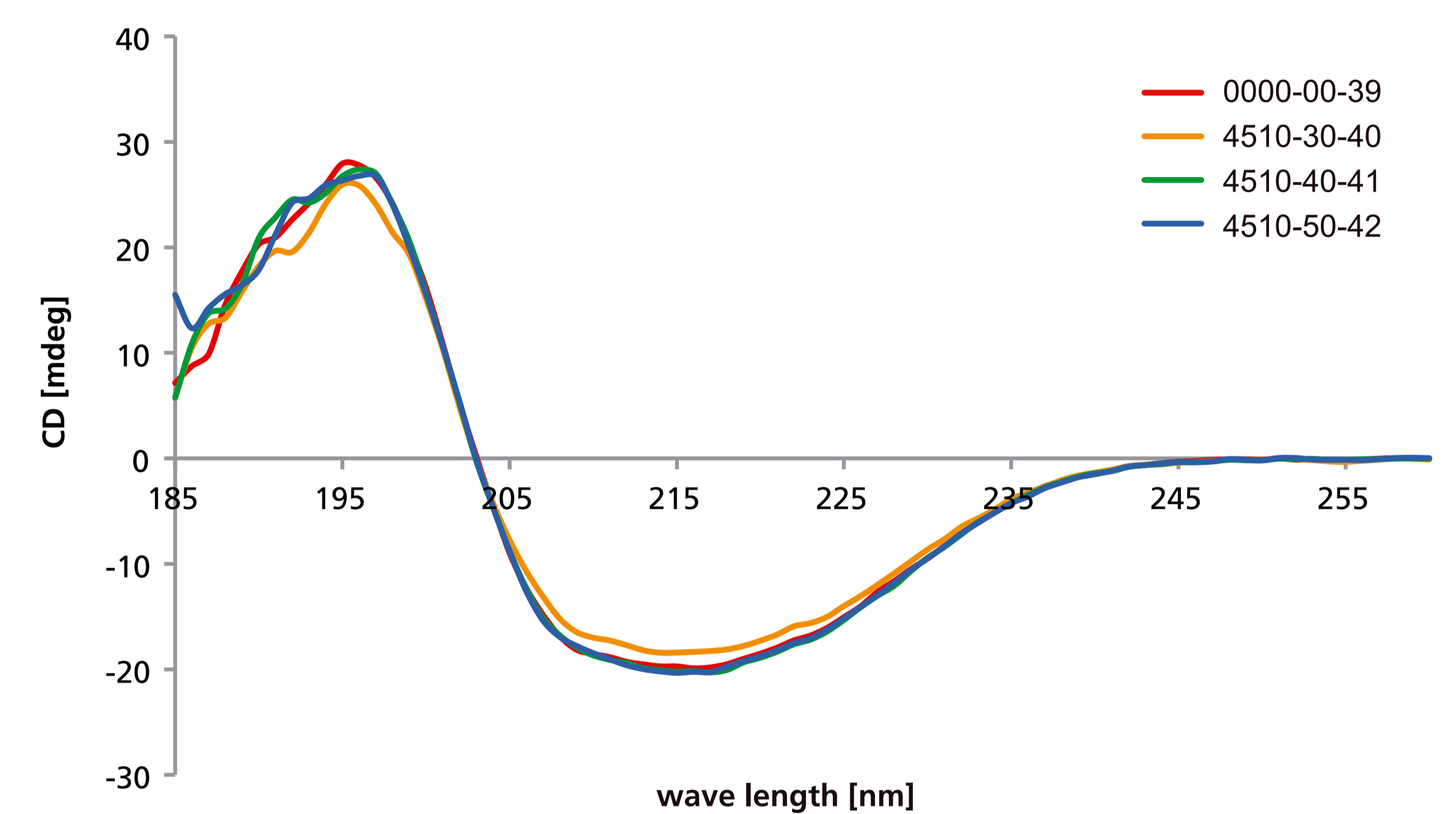
The pressure 450–550 MPa held for 10 minutes at temperatures 30, 40 and 50 °C did not change the allergenicity of the rBet v1 protein compared with untreated sample in Western Blot method. Figure 4.

## CONCLUSIONS

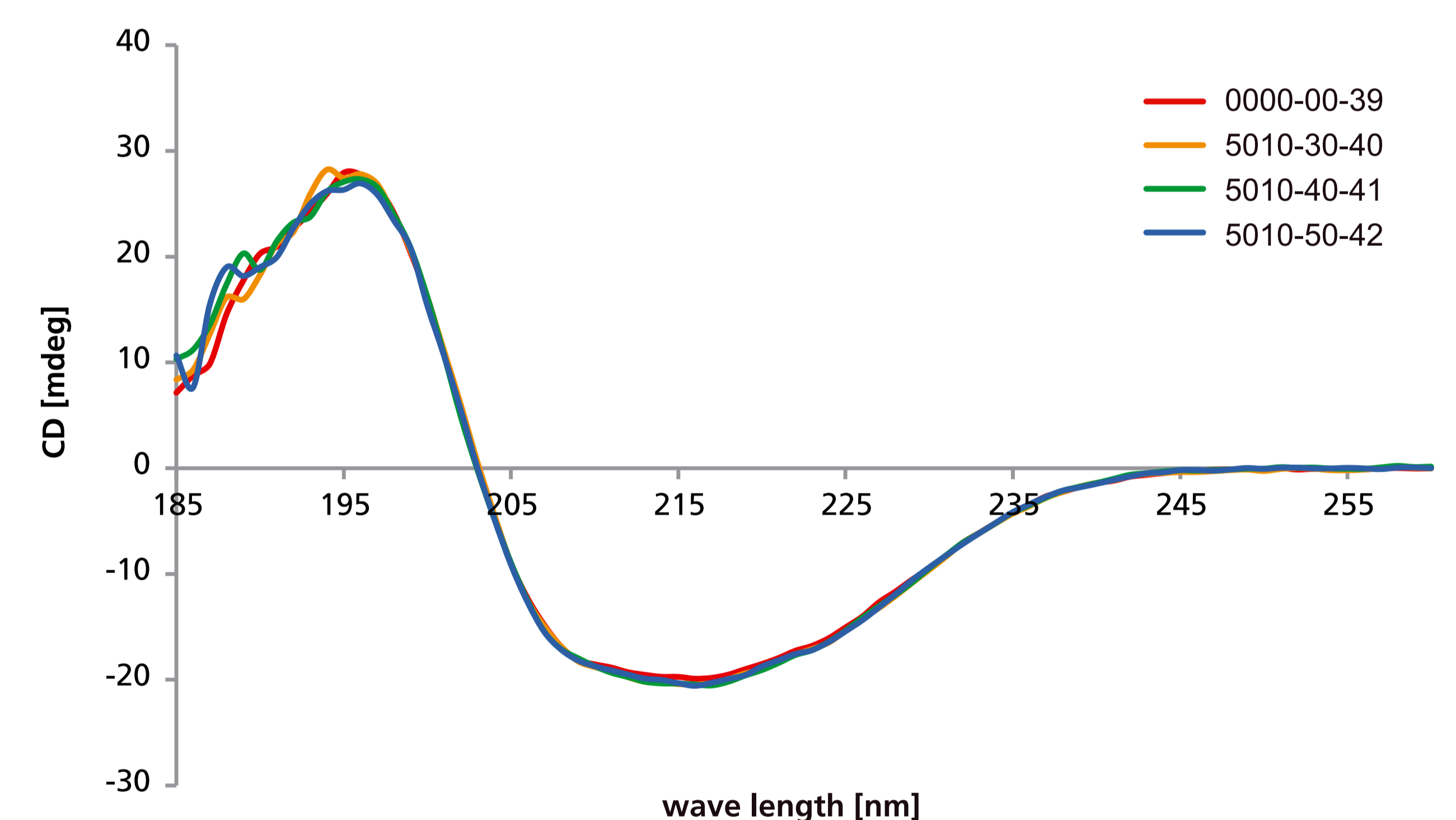
In our study, high pressure treatment applied in the ranges of pressure, temperature and holding times described, was not capable of altering the allergenicity of rBet v1.



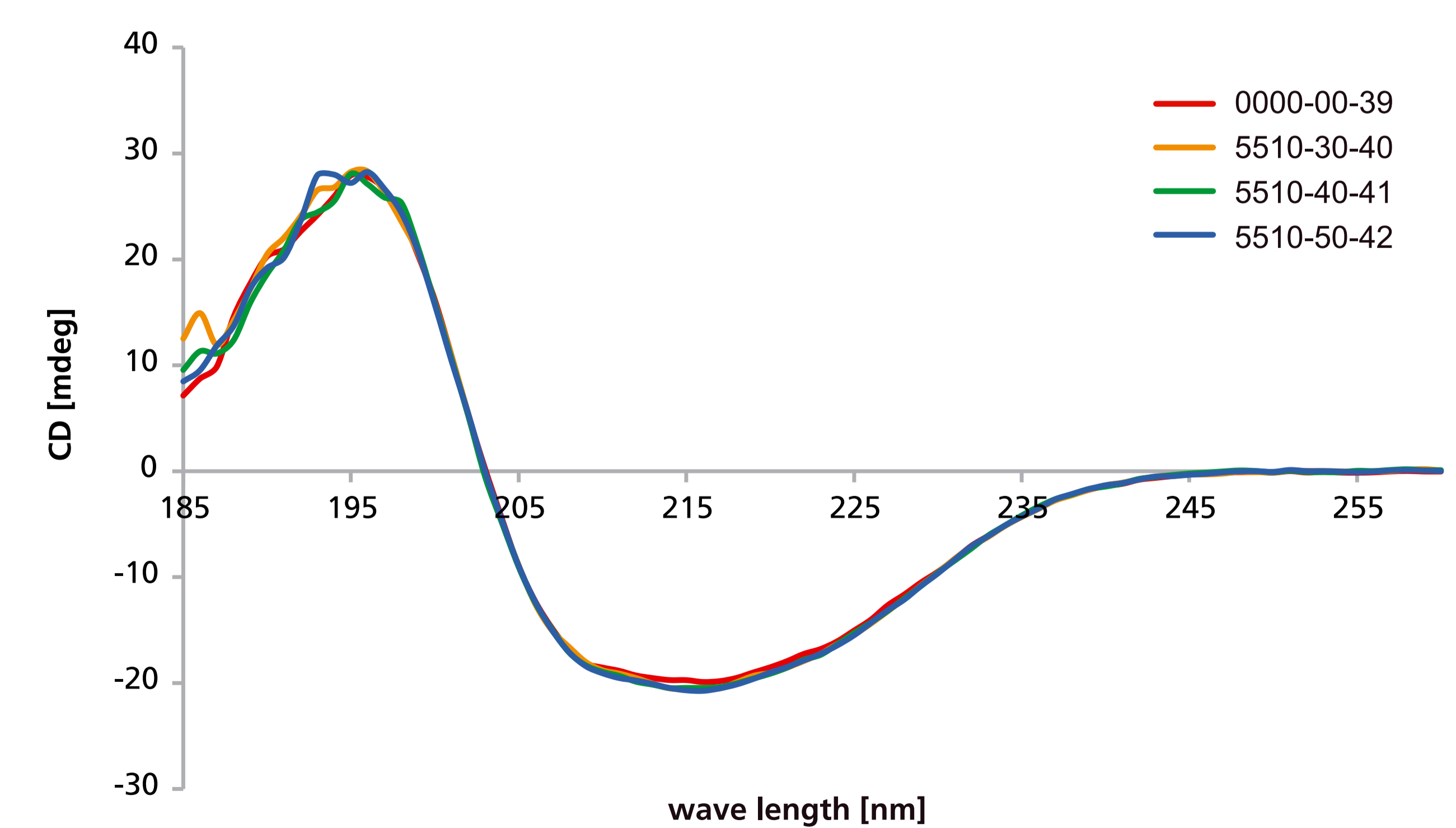
**Figure 1** ECD spectra of allergen rBet v1 treated at 450 MPa for 10 minutes at temperatures of 30, 40 and 50°C compared with untreated sample



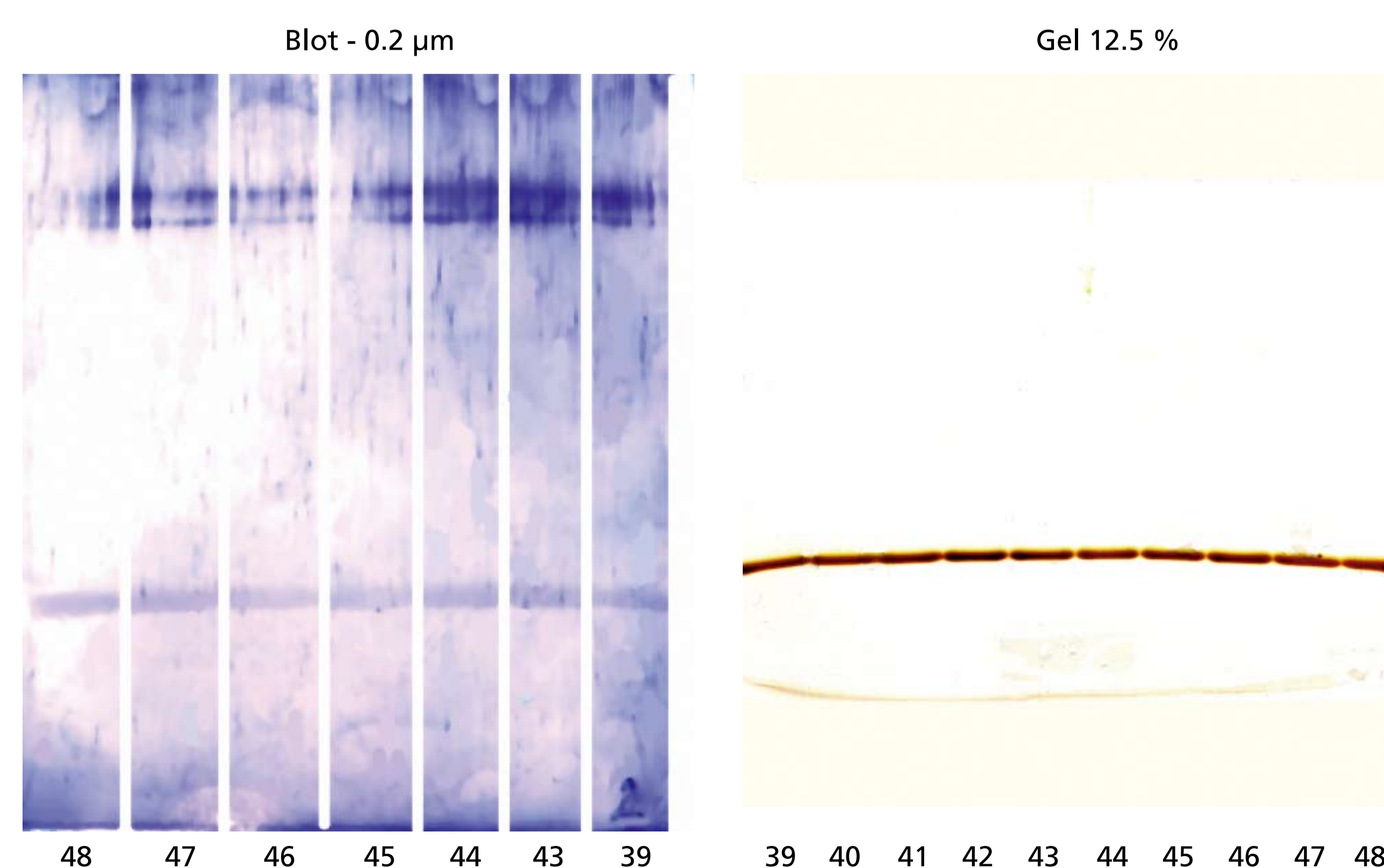
**Figure 2** ECD spectra of allergen rBet v1 treated at 500 MPa for 10 minutes at temperatures of 30, 40 and 50°C compared with untreated sample



**Figure 3** ECD spectra of allergen rBet v1 treated at 550 MPa for 10 minutes at temperatures of 30, 40 and 50°C compared with untreated sample



**Figure 4** Influence of pressure and holding temperature on allergenicity of rBet v 1 in Western blot test



Pressure 500 MPa samples 43, 44, 45 holding temperature 30, 40 a 50°C;  
Pressure 550 MPa samples 46, 47, 48 holding temperature 30, 40 a 50°C.