

***In silico* analysis of interactions between the ingredient molecules
contained in cold medicines and HLA-A*02:06**

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Stevens-Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are severe drug hypersensitivities with high mortality. Typical over-the-counter drugs of cold medicines are suggested to be causative. As multiple ingredients are generally contained in cold medicines, it is of particular interest to investigate which ingredients are responsible for SJS/TEN. However, experimental examination of causal relationships between SJS/TEN and a particular drug molecule is not straightforward. Significant association between HLA-A*02:06 and SJS/TEN with severe ocular surface complications has been observed in Japanese. We have undertaken *in silico* docking simulations between the HLA-A*02:06 molecule and various ingredients contained in cold medicines available in Japan. We use the composite risk index (CRI) that is the absolute value of the binding affinity multiplied by the daily dose to assess the potential risk of the adverse reactions. The drugs which have been recognized as causative drugs of SJS/TEN in Japan have revealed relatively high CRI and the association between SJS/TEN and HLA-A*02:06 has been qualitatively verified. The results have also shown that some drugs whose links to SJS/TEN have not been clinically recognized in Japan show the high CRI and suggested that attention should be paid to their adverse drug reactions.