



**KIDS-AGD044-HIT(1-2)**

**Clinical Study Report**

**A Clinical Study for the Effects of  
'Vitabrid Scalp Shampoo' on the  
Improvement of Flaky Scalp, Hair Elasticity  
(Hair Tensile Strength), Damaged Hair Cuticle  
(Hair Roughness), and Permed Hair Curl  
Retention (in Comparison with a Control Group)**

**Date : June 16, 2017**

**Requested by : HYUNDAI IBT CO., LTD. (Korea)**

**Performed by : Korea Institute of Dermatological Sciences (Korea)**



**Korea Institute of  
Dermatological Sciences**

# SUMMARY OF THE CLINICAL STUDY



<b>Title of the clinical study</b>	A clinical study for the effects of 'Vitabrid Scalp Shampoo' on the improvement of flaky scalp, hair elasticity (hair tensile strength), damaged hair cuticle (hair roughness), and permed hair curl retention (in comparison with a control group)	
<b>Clinical trial institution</b>	Korea Institute of Dermatological Sciences 6th Floor, Tower A, 25, Beobwon-ro 11-gil, Songpa-gu, Seoul, 05836, Republic of Korea	
<b>Sponsor</b>	HYUNDAI IBT CO., LTD.	
<b>Chief researcher</b>	In Sook An, Ph. D.	
<b>Researcher</b>	Seung Bin Kwon, Ph. D.	
<b>Name of the test materials</b>	Vitabrid Scalp Shampoo (Test material) Vitabrid Nourishing Shampoo (Control material)	
<b>Trial period</b>	May 2, 2017 (study initiation) ~ June 16, 2017 (study termination) For the study initiation, the person in charge of the study signed the clinical study proposal; for the study termination, the person in charge of the study signed the final report.	
<b>Subjects</b>	Twenty one female subjects over twenty years old who met the inclusion criteria and were not included in the exclusion criteria were selected for this study. And forty groups of hair pieces were used for this study.	
<b>Methods</b>	Usage of test materials	<ol style="list-style-type: none"> <li>1. Once a day for two weeks, after soaking the hair with lukewarm water, subjects washed their scalp area including the hair using the same amount of test material, 'Vitabrid Scalp Shampoo'.</li> <li>2. Six times for two weeks, a same researcher in charge washed each of 20 groups out of 40 groups of permed hair pieces using the same amount of test material, 'Vitabrid Scalp Shampoo', and control material, 'Vitabrid Nourishing Shampoo', respectively.</li> </ol>
<b>Methods</b>	Evaluations	The evaluations were conducted by Standard Operating Procedures of KIDS and all of the procedures were investigated by the person in charge of reliability assurance.

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<p>Methods</p>	<p>Evaluations</p>	<ol style="list-style-type: none"> <li>1. Measurements             <ol style="list-style-type: none"> <li>1) Evaluation of flaky scalp improvement using the Keratin sticker and the Image Analyzing Program</li> <li>2) Evaluation of hair elasticity (hair tensile strength) improvement using the Tensile Tester</li> <li>3) Evaluation of damaged hair cuticle (hair roughness) improvement using the Scanning Electron Microscope and the Image Analyzing Program</li> <li>4) Evaluation of permed hair curl retention (in comparison with a control group) using the Digital Camera and the Image Analyzing Program</li> </ol> </li> <li>2. Evaluation of abnormal skin response</li> <li>3. Survey</li> </ol>
<p>Results</p>	<ol style="list-style-type: none"> <li>1. The evaluation results of flaky scalp improvement using the Keratin sticker and the Image Analyzing Program The extent of scalp flakiness was decreased 40.94% after two weeks of the test material application in comparison with the pre-application (<math>p &lt; .001</math>).</li> <li>2. The evaluation results of hair elasticity (hair tensile strength) improvement using the Tensile Tester The hair tensile strength was increased 17.54% after two weeks of the test material application in comparison with the pre-application (<math>p &lt; .01</math>).</li> <li>3. The evaluation results of damaged hair cuticle (hair roughness) improvement using the Scanning Electron Microscope and the Image Analyzing Program The Ra value indicating hair surface roughness was decreased 41.97% after two weeks of the test material application in comparison with the pre-application (<math>p &lt; .001</math>).</li> <li>4. The evaluation results of permed hair curl retention (in comparison with a control group) using the Digital Camera and the Image Analyzing Program The length of hair piece was increased 5.40% in a test group, whereas 9.82% in a control group after two weeks of the test material application (after 6 times shampooing) respectively in comparison with the pre-application (after hair perm). The evaluation result of a test group was statistically significant (<math>p &lt; .05</math>) in comparison with a control group.</li> <li>5. Subjects' abnormal skin responses were not detected during the trial period.</li> </ol>	

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<b>Conclusion</b>	In the study requested by HYUNDAI IBT CO., LTD., 'Vitabrid Scalp Shampoo' was found to improve flaky scalp, hair elasticity (hair tensile strength), damaged hair cuticle (hair roughness), and permed hair curl retention (in comparison with a control group).
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