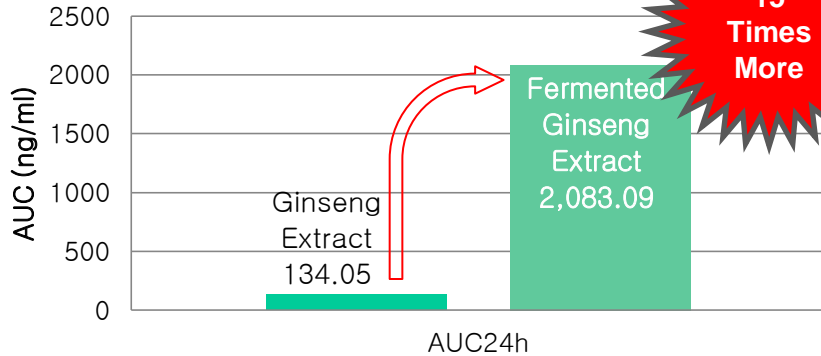


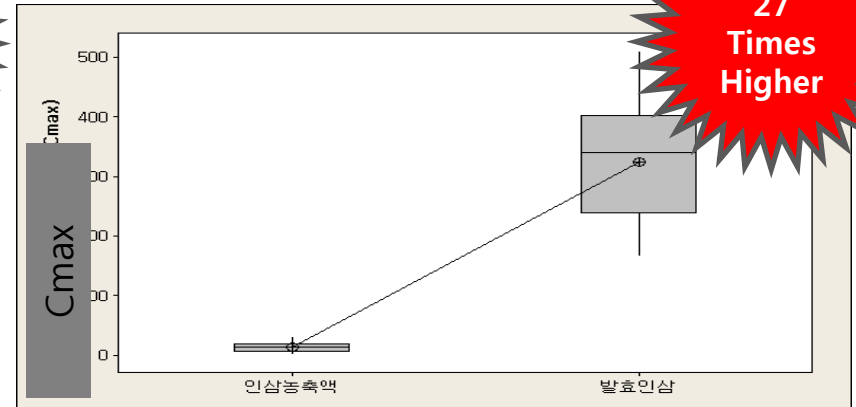
CLINICAL TEST RESULTS

IH-901 Absorption Quantity



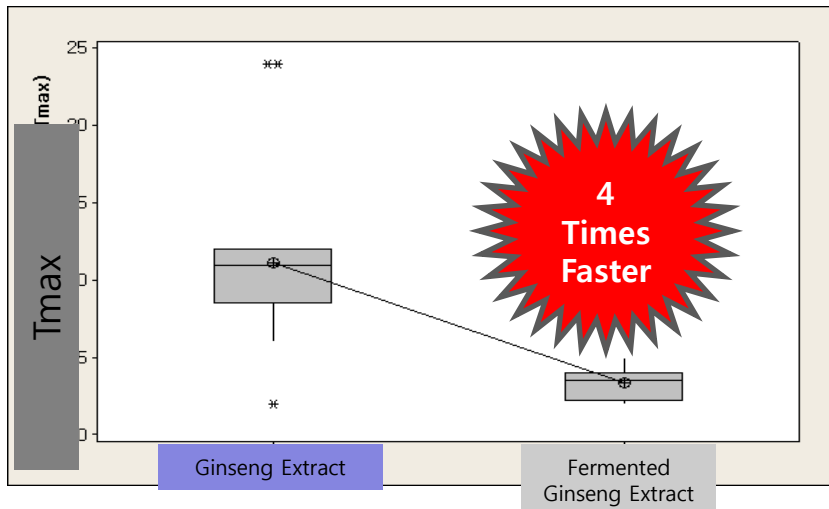
15 Times More

IH-901 Maximum Density in Blood

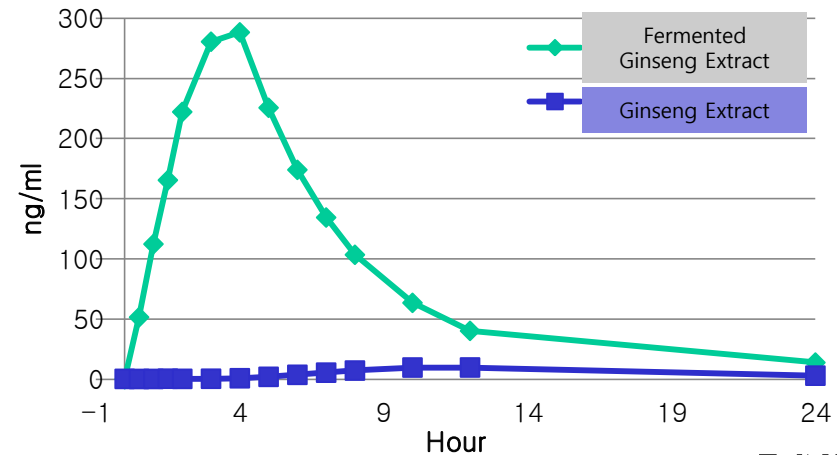


27 Times Higher

IH-901 Absorption Speed



4 Times Faster



Summary of Study Method

Subject	Clinical test of Absorption rate of Ilhwa Fermented Ginseng extract vs Absorption rate with Standard Ginseng Extract
Person in Charge	Kyunghee Univ. Clinical Pharmacology, Dr. Sung-bin, Lim
Subjects	Age 20~40 year-old, Male, 24 Test subjects who passed pre health examination
Testing Design	Random Arrangement, 2×2 Crossing Test, Blood Collecting Time: 0, 0.5, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10, 12, 24 hr
Evaluation	Measuring Elements : AUC, Density of IH-901 in Blood (max), Time for Maximum density of IH-901(Tmax) Method of Analysis: LC-MS/MS

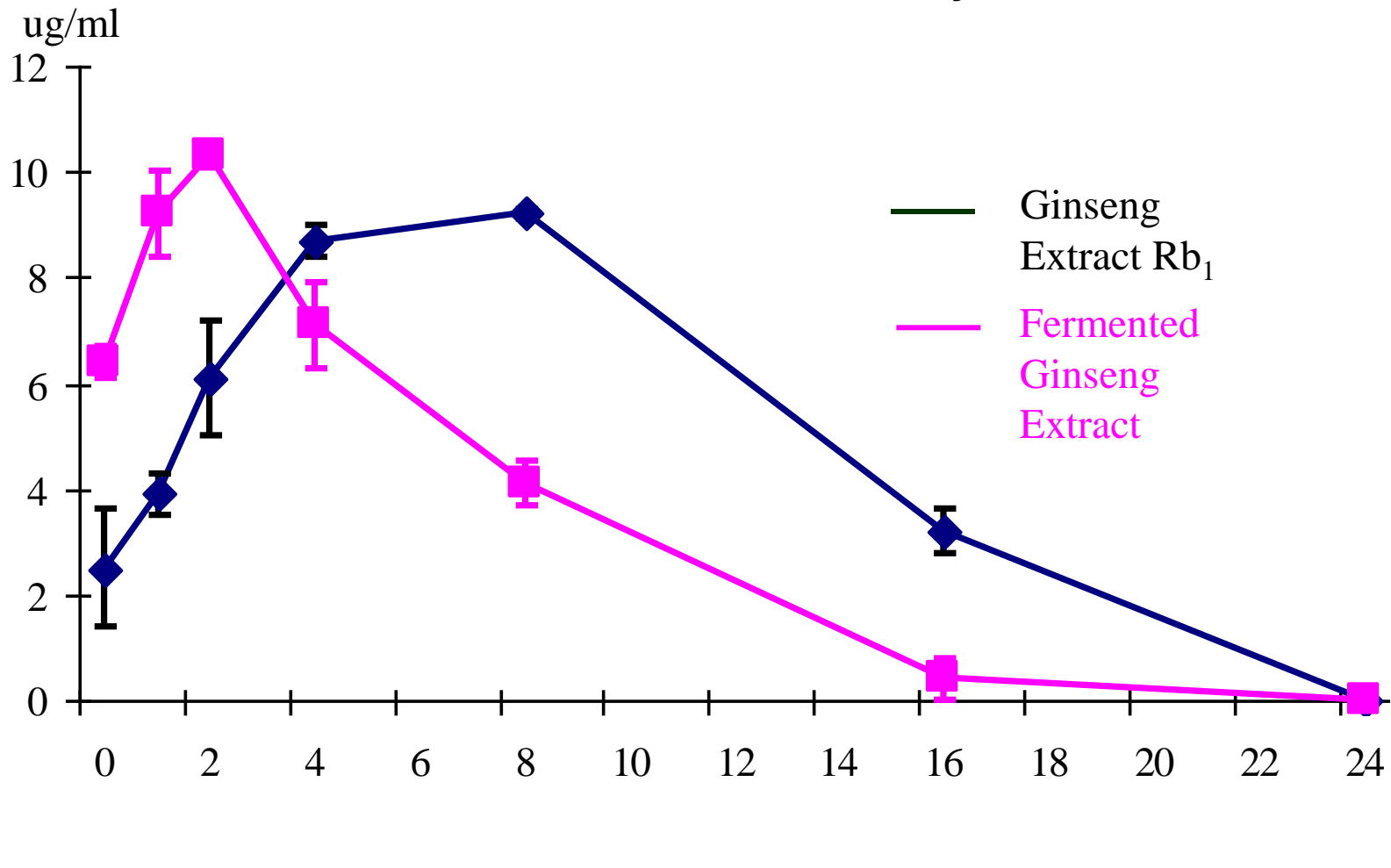
Experimental Example – Study on Body's Absorption of IH-901 of the Fermented Ginseng Concentrate of the Present Invention

Twenty four healthy male volunteers of ages ranging from 20 to 45, whose body weights are within 20% of the ideal body weights, were used as subjects for the study (randomized, 2 × 2 cross-over design).

- Each volunteer was randomized to receive the fermented ginseng extract or ginseng extract and then crossed over to receive the opposite to compare pharmacokinetic characteristic assessments via accurate blood samples. Blood samples were taken at 0, 0.5, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10, 12, and 24 hours after administration of the fermented ginseng extract or ginseng extract and were analyzed by LC-MS/MS.
- The average maximum plasma concentration (C_{max}), average time to reach maximum plasma concentration (T_{max}), and area under the plasma concentration time curve (AUC) values measured are shown in the following tables. C_{max} is the average of the maximum concentration values of each subject irrespective of time. and T_{max} is the average of the time values corresponding to the C_{max} values of each subject. The C_{max}, T_{max}, and AUC values for each subject were as follows:
 - **White Ginseng Concentrate Extract**
 - C_{max}: 13.88±7.24 ng/ml T_{max}: 12.04 hr AUC: 134.5±63.10 ng/ml
 - **Fermented White Ginseng Concentrate Extract**
 - C_{max}: 325.00±91.97 ng/ml (23 times more average maximum plasma concentration)
 - AUC: 2083.09±524.68 ng/ml (15.5 times more absorption)
 - T_{max}: 3.29 hr (3.7 times faster absorption)

Hypothesis of Clinical Study

1999 Human Bacteria study with mice

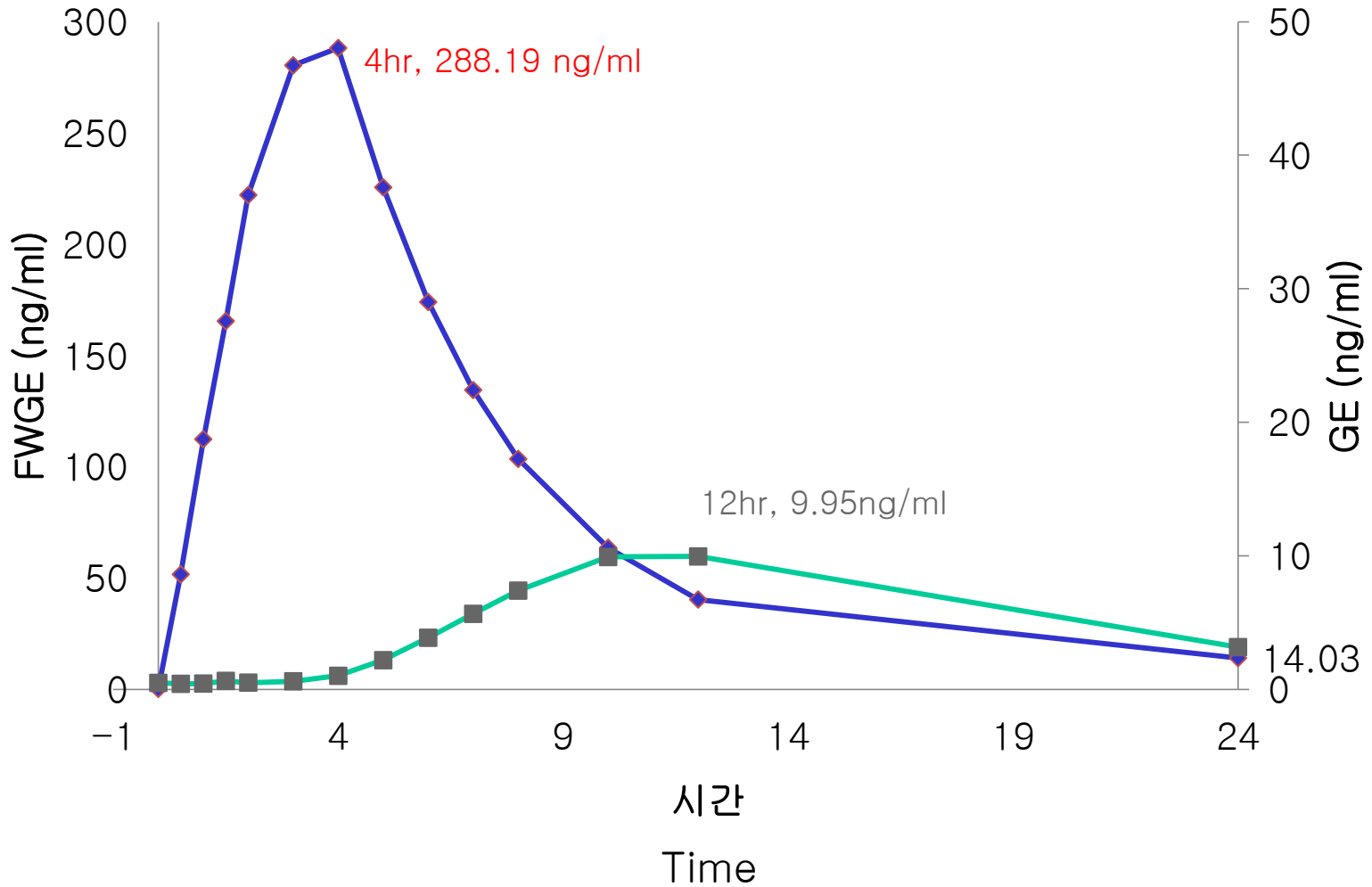


hr

FWGE: Numeric Value of IH-901 in Blood

Average

WGE: Numeric Value of IH-901 in Blood

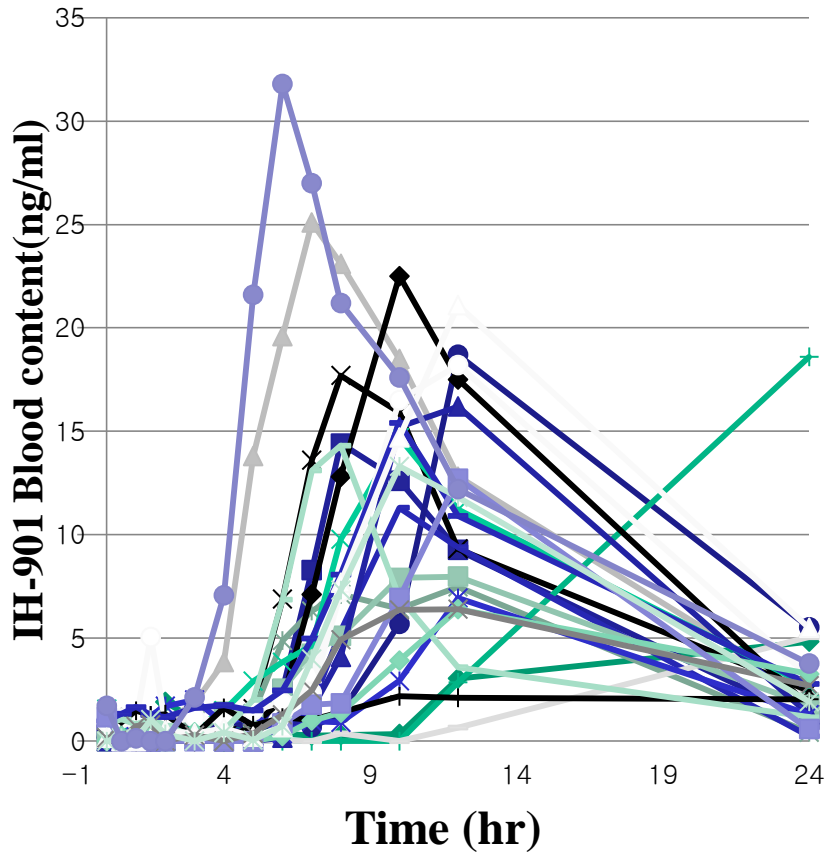


Absorption Comparison

- Note Scale Difference:
 - Left is for standard White Ginseng Extract with scale maximum of 35ng/ml
 - Right is for GS15-4 Fermented White Ginseng Extract (FWGE) with scale maximum of 600ng/ml
- Bottom Line Stands for Time period 0 to 24 hours.
- Note 3-4 time improved consistency of absorption for GS15-4 (FWGE) vs inconsistent absorption for GE

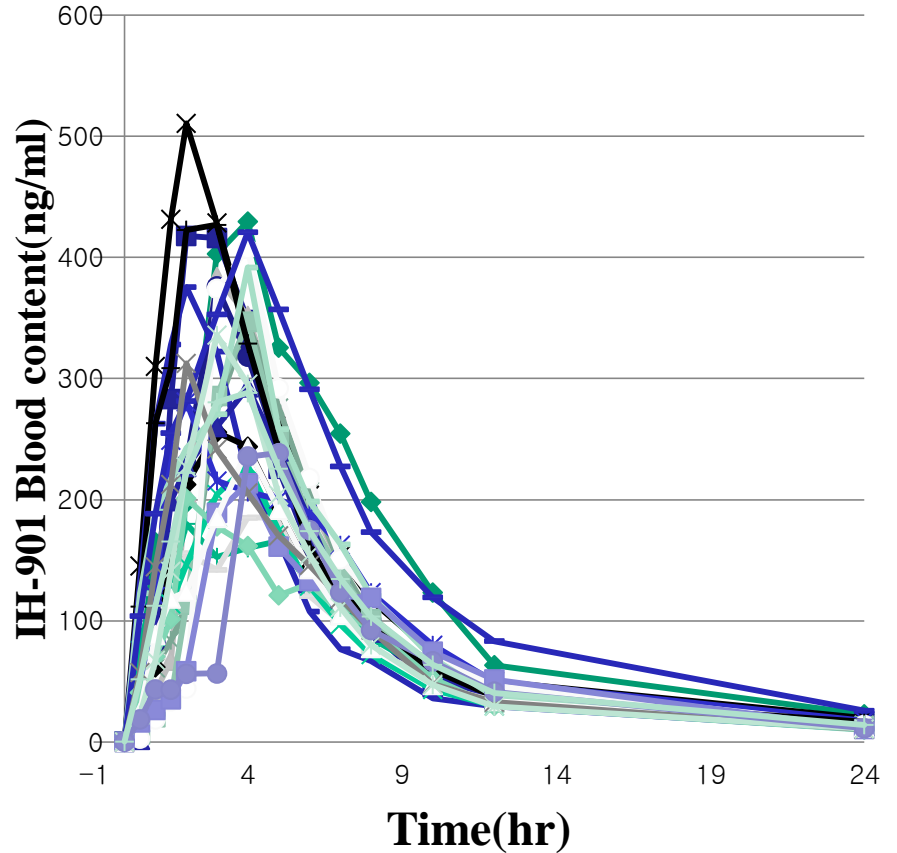
Change of Individual Blood IH-901 content

Ginseng Extract



GS15-4

NOTE: GS15-4 is FWGE



CONCLUSION: 15 times greater Absorption ‘ plus 4 times faster + 4 times more Consistent

- GS15-4 showed 15 times increased absorption in the blood
- GS15-4 showed 4 times faster absorption in the blood
- GS15-4 had much more constant absorption
 - It was found that when ginseng concentrate was taken, each individual had different capabilities with respect to metabolizing ginsenosides to IH-901 metabolite and overall only a small amount of IH-901 was absorbed in the blood. When standard ginseng concentrate was taken, each individual’s total absorption was inconsistent with other individuals and they exhibited different average times in reaching the maximum plasma concentration.
 - In contrast, when Ilhwa fermented ginseng concentrate was taken, the amount of IH-901 absorbed and the average time to reach maximum plasma level was much more consistent for each individual. Further, when the fermented ginseng concentrate was taken, a far larger amount of IH-901 was absorbed in the blood. (15 times more AUC)
- Accordingly, the above results demonstrate that a steady and constant effect (with little individual variation) can be expected when subjects take the GS15-4 fermented ginseng concentrate (patent pending)