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Correction to "1-[5-(2-Fluorophenyl)-1-(pyridin-3-ylsulfonyl)-1*H*-pyrrol-3-yl]-*N*-methylmethanamine Monofumarate (TAK-438), a Novel and Potent Potassium-Competitive Acid Blocker for the Treatment of Acid-Related Diseases."

In the above article [Hori Y, Imanishi A, Matsukawa J, Tsukimi Y, Nishida H, Arikawa Y, Hirase K, Kajino M, and Inatomi N (2010) *J Pharmacol Exp Ther* **335**:231–238], it has been noted that the IC_{50} value of lansoprazole against porcine H^+,K^+-ATPase at pH 6.5 in Table 1 is incorrect. This was due to an error in processing the raw data when creating Fig. 2C. The correct IC_{50} value of lansoprazole at pH 6.5 is 6.8 μM (CI: 4.6-10 μM). This is only a slight difference from the incorrect value and therefore, the information provided in the *Discussion* is not affected by this correction.

Corrected Fig. 2C with new legends and Table 1 are reprinted below. *Abstract*, and *Results* for the Effect of TAK-438, SCH28080, and lansoprazole on gastric H^+,K^+-ATPase activity are also provided.

The authors regret this error and any inconvenience it may have caused.

TABLE 1
IC_{50} values of TAK-438, SCH28080, and lansoprazole against porcine H^+,K^+-ATPase

	pH 6.5		pH 7.5	
	IC_{50}	CI	IC_{50}	CI
	μM			
TAK-438	0.019	(0.017-0.023)	0.028	(0.023-0.033)
SCH28080	0.14	(0.12-0.17)	2.5	(1.6-3.8)
Lansoprazole	6.8	(4.6-10)	66	(47-86)

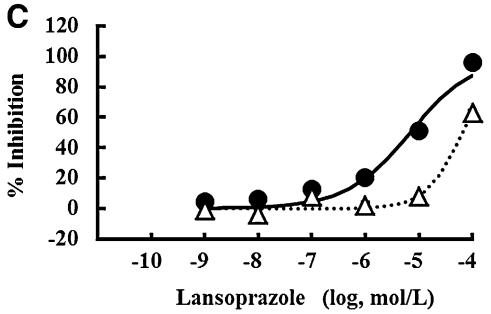

Fig. 2C Inhibitory activities of lansoprazole on porcine gastric H^+,K^+-ATPase activity. The enzyme was preincubated for 30 min with various concentrations of lansoprazole at pH 6.5 (closed circles) and pH 7.5 (open triangles). Each point represents the mean ± S.E. of 3 different experiments.

Abstract

Proton pump inhibitors (PPIs) are widely used in the treatment of acid-related diseases. However, several unmet medical needs, such as suppression of night-time acid secretion and rapid symptom relief, remain. In this study, we investigated the pharmacological effects of 1-[5-(2-fluorophenyl)-1-(pyridin-3-ylsulfonyl)-1*H*-pyrrol-3-yl]-*N*-methylmethanamine monofumarate (TAK-438), a novel potassium-competitive acid blocker (P-CAB), on gastric acid secretion in comparison with lansoprazole, a typical PPI, and SCH28080 [3-(cyanomethyl)-2-methyl, 8-(phenylmethoxy)imidazo(1,2-*a*)pyridine], a prototype P-CAB. TAK-438, SCH28080, and lansoprazole inhibited H^+,K^+-ATPase activity in porcine gastric microsomes with IC_{50} values of 0.019, 0.14, and **6.8** μM, respectively, at pH 6.5. The inhibitory activity of TAK-438 was unaffected by ambient pH, whereas the inhibitory activities of SCH28080 and lansoprazole were weaker at pH 7.5. The inhibition by TAK-438 and SCH28080 was reversible and achieved in a K^+-competitive manner, quite different from that by lansoprazole. TAK-438, at a dose of 4 mg/kg (as the free base), p.o.,

completely inhibited basal and 2-deoxy-D-glucose-stimulated gastric acid secretion in rats, and its effect on both was stronger than that of lansoprazole. TAK-438 increased the pH of gastric perfusate to a higher value than did lansoprazole or SCH28080, and the effect of TAK-438 was sustained longer than that of lansoprazole or SCH28080. These results indicate that TAK-438 exerts a more potent and longer-lasting inhibitory action on gastric acid secretion than either lansoprazole or SCH28080. TAK-438 is a novel antisecretory drug that may provide a new option for the patients with acid-related disease that is refractory to, or inadequately controlled by, treatment with PPIs.

Results

Effect of TAK-438, SCH28080, and Lansoprazole on Gastric H^+,K^+-ATPase Activity. The inhibitory effect of TAK-438, SCH28080, and lansoprazole on gastric H^+,K^+-ATPase activity is shown in Fig. 2. Under weakly acidic conditions (pH 6.5), all three compounds inhibited gastric H^+,K^+-ATPase activity in a concentration-dependent manner. The inhibitory activity of TAK-438 was the most potent. The IC_{50} values of TAK-438, SCH28080, and lansoprazole were 0.019, 0.14, and **6.8** μM, respectively (Table 1). Under neutral conditions (pH 7.5), the inhibitory activity of TAK-438 was almost the same as that under weakly acidic conditions. On the other hand, the enzyme inhibitory activities of SCH28080 and lansoprazole were weaker under the neutral condition (Table 1).