March 25, 1948.

Dr. Edna M. Montgomery,
Corn Industries Research Foundation,
825 North University,
Peoria 5, Illinois.

Dear Dr. Montgomery,

Thank you for your offer of samples of isomaltose. While my previous requests mentioned quantities of the order of 10 mg, your letter left the impression that in consequence of your chemical work, much larger quantities might be readily available. Individual strains can be tested on 10 mg each, but a more satisfactory comparative series would require 200 mg. Since I do dot know how difficult isomaltose is to prepare now, I must leave it to your judgment how large a sample it would be worthwhile using up.

Dr. Stodola may have mentioned that we are working on changes in carbohydrase specifities brought about by genetic mutations in Escherichia coli. For the most part we are studying lactose- and maltose- splitting enzymes, and at least for the former have considerable evidence of "indirect" (initial hydrolysis) fermentation. While some mutants appear to have lost all galactosidatic activity, others will split methyl galactoside but not lactose. We are therefore looking for other substrates which may allow a further classification of the specificities of the mutant enzymes. While Dr. K. P. Link is cooperating in these studies in the synthesis of likely substrates, we could not hope to prepare anew every compound that might be useful. Therefore, I am trying to obtain by gift sufficient samples (200 mg if possible) of these analogs to make a preliminary determination of their usefulness in the program. I have already corresponded with Pigman and with Richtmyer for the initial sample of methyl b-D-galactoside and neolactose respectively. I suspect that you could as easily suggest as I the kind of compound worth trying. I have in mind other b-D-galactosides, particularly epimers of lactose, lactosides, lactositol, and other alkyl or aryl derivatives, on the one hand, and related glycosides such as a-L-arabinosides, desoxygalactosides, b-D-fucosides, etc. I should be grateful to have any of these or like compounds.

Galactosan (1,6-anhydro-b-D-pyranose) is another galactoside in which we may have a common interest. In view of our departmental chairman, R.A.Brink's, early work, we are interested in waxy starch, and I was particularly interested in your recent description of levoglucosan in waxy starch hydrolysates. As Peat points out, anhydro sugars may play an important biological role, but so far as I know their biological availability has never been tested. I should be glad to test any of these compounds(on various coli mutants) that you might care to send. A recently isolated mutant which uses both moieties of maltose, but not glucose, might be particularly cogent.

Yours sincerely,

Joshua Lederberg
Assistant Professor of Genetics.