

IND 068652, IND 118840
NDA 202293, NDA 205649, NDA 209091

WRITTEN REQUEST – AMENDMENT 3

AstraZeneca AB
c/o AstraZeneca Pharmaceuticals LP
Attention: Craig Zecher
Director, Regulatory Affairs
One MedImmune Way
Gaithersburg, MD 20878

Dear Mr. Zecher:

Please refer to our correspondence dated December 20, 2022, issued in response to your October 21, 2022, submission. As stated in that communication, based on our accumulating experiences reviewing completed pediatric trials of antihyperglycemic agents in patients with type 2 diabetes (T2D), we have determined that the Written Request for pediatric studies for Farxiga (dapagliflozin) should be amended to remove the requirement for Week 104 data.

We have reviewed the Written Request – Amendment 2 and are amending the Written Request. All other terms stated in our Written Request issued on March 4, 2019, as clarified on March 26, 2019, and as amended on October 29, 2021, and June 22, 2022, remain the same. (Text added is underlined. Text deleted is strikethrough.)

BACKGROUND:

This study investigates the potential use of dapagliflozin in the treatment of pediatric type 2 diabetes mellitus (T2D) patients, aged 10 to 17 years (inclusive).

The prevalence of T2D among pediatric patients is increasing, concurrent with the obesity epidemic. At the time of study initiation, the only approved treatment options for pediatric patients 10 years of age and older diagnosed with type T2D were metformin and insulin either as monotherapy or in combination. Metformin is limited by gastrointestinal adverse reactions and the need for multiple daily dosing in most cases. In addition, diabetes is a progressive disease, such that patients may need additional antihyperglycemic therapy added to metformin to achieve adequate glycemic control. Dapagliflozin would provide useful additional treatment options for pediatric patients with T2D. Efficacy of dapagliflozin must be established in the pediatric population because it is unknown whether the effects of dapagliflozin are sufficiently similar between adults and the pediatric population. The use of placebo in the proposed dapagliflozin clinical trial is ethically justified as all subjects will be receiving background

metformin and/or insulin therapy, and the protocol includes strict inclusion and hyperglycemic rescue criteria, as well as diet, exercise, and diabetic education.

Studies of T2D in patients under 10 years of age, including neonates, are impossible or highly impractical because few of these patients require pharmacologic therapy.

To obtain needed pediatric information on dapagliflozin, the Food and Drug Administration (FDA) is hereby making a formal Written Request, pursuant to Section 505A of the Food, Drug, and Cosmetic Act (the Act), as amended by the Food and Drug Administration Amendments Act of 2007, that you submit information from the studies described below.

This Written Request pertains to dapagliflozin. However, the study described in this Written Request includes another product, saxagliptin. In order to reach agreement on a global pediatric program fulfilling pediatric requirements for both dapagliflozin and saxagliptin, the protocol for this Written Request (Study CV181375) was designed to evaluate the efficacy of dapagliflozin and saxagliptin against a shared placebo control in pediatric T2D subjects. Consequently, elements of Study CV181375 that are specific to the study of saxagliptin are not required to fulfill the dapagliflozin Written Request.

- *Nonclinical study(ies):*

Based on review of the available nonclinical toxicology, no additional animal studies are required at this time to support the clinical studies described in this Written Request.

- *Clinical studies:*

Study 1: A 26-week, multicenter, randomized, placebo-controlled, double-blind, parallel-group, dose-ranging (at least two doses) Phase 3 trial with a 26-week safety extension period evaluating the safety, efficacy, and pharmacokinetics of dapagliflozin (and saxagliptin) in pediatric patients 10 to less than 18 years of age diagnosed with T2D who are on diet and exercise and metformin, or insulin, or metformin and insulin. Efficacy in children aged 10 to less than 18 years cannot be fully extrapolated and will be determined by the study outlined in the Written Request.

- *Objective of the study:*

- Efficacy: To compare the mean hemoglobin A1c (HbA1c) change from baseline to week 26 in pediatric T2D subjects: 1) between dapagliflozin (5 mg or 10 mg [all doses and regimens combined]) and placebo and 2) between saxagliptin (2.5 mg or 5 mg [all doses and regimens combined]) and placebo. Dapagliflozin, saxagliptin, or placebo will be added to diet and exercise plus metformin (immediate release [IR] or extended release [XR]) and/or insulin in T2D subjects with inadequate glycemic control (i.e., HbA1c of 6.5 to 10.5%) on diet and exercise and metformin, insulin, or metformin plus insulin.
- Safety: To evaluate the safety (including the incidence of hypoglycemia and diabetic ketoacidosis [DKA]) and tolerability of dapagliflozin and saxagliptin as

add-on to diet, exercise and background antihyperglycemic therapy (i.e., metformin, insulin, or metformin plus insulin) at the Week 26 and Week 52 visits., as well as the effects of these products on growth, maturity, Tanner staging, and markers of bone health at the Week 104 visit. Additionally, the safety and tolerability of dapagliflozin and saxagliptin monotherapy will be evaluated in a subset of subjects who are randomized to withdraw background metformin.

- *Patients to be studied:*
 - *Age group in which study(ies) will be performed:* 10 to less than 18 years of age.
 - *Number of patients to be studied:* Total enrollment in the study will be at least 243 subjects, including the dapagliflozin, saxagliptin, and placebo arms (randomized in a 1:1:1 ratio, with at least 11% of subjects enrolled from the United States).

Representation of Ethnic and Racial Minorities: The studies must take into account adequate (e.g., proportionate to disease population) representation of children of ethnic and racial minorities. If you are not able to enroll an adequate number of these patients, provide a description of your efforts to do so and an explanation for why they were unsuccessful.

- *Study endpoints:*
 - *Pharmacokinetic (PK)/pharmacodynamic (PD) endpoints:* The pharmacokinetic endpoints for the proposed trial (CV181375) must include assessment of dapagliflozin, saxagliptin, and 5-OH-saxagliptin plasma concentrations as agreed upon in the protocol. All PK/PD assessments should be collected under fasting conditions.
 - *Efficacy endpoints:* The primary efficacy endpoint must be the change from baseline in HbA1c at Week 26. HbA1c will be measured at timepoints agreed upon in the protocol.
 - Important secondary efficacy endpoints must include change from baseline in fasting plasma glucose (FPG) at Week 26, and the percentage of subjects with baseline HbA1c $\geq 7\%$ who achieve an HbA1c level $< 7.0\%$ at Week 26.
 - *Safety endpoints:*
Safety outcomes must include (and agreed upon with the Agency in the protocol):
 - Nature, frequency, severity, and relationship to treatment of all adverse events (AEs)
 - Physical examination findings
 - Vital sign changes
 - Electrocardiogram findings
 - Laboratory parameters, including hematology, biochemistry, and urinalysis
 - Pubertal development (based on Tanner staging)

- Growth parameters (based on replicated and standardized measures of height and weight)
- Measures and biomarkers of growth, maturity and bone health, including: height; weight; thyroid-stimulating hormone (TSH), free thyroxine (FT4), luteinizing hormone (LH), follicle-stimulating hormone (FSH), estradiol, total testosterone, insulin-like growth factor-1 (IGF-1), insulin-like growth factor binding protein-3 (IGFBP-3), calcitonin, 25-hydroxy vitamin D, bone alkaline phosphatase, osteocalcin, parathyroid hormone (PTH), cross-linked telopeptide of Type 1 collagen (CTX-1)
- Incidence of hypoglycemia
- The protocol must include the following adverse events that will be actively monitored:
 - Gastrointestinal AEs
 - Hepatic AEs/liver laboratory abnormalities
 - Hypersensitivity reactions
 - Hypoglycemia using the American Diabetes Association (ADA) definitions¹
 - Infection by AE reporting
 - Pancreatitis by AE reporting
 - Renal impairment by serum creatinine/eGFR monitoring
 - Volume depletion (including orthostatic changes in blood pressure and heart rate)

The protocol must include a plan for monitoring all adverse events until symptom resolution or until the condition stabilizes.

A Data Monitoring Committee (DMC) must be included. See the guidance for industry Establishment and Operation of Clinical Trial Data Monitoring Committees, available at: <http://www.fda.gov/downloads/RegulatoryInformation/Guidances/ucm127073.pdf>

- *Known drug safety concerns and monitoring:* The following are possible safety concerns associated with DPP-4 inhibitors and/or SGLT-2 inhibitors, which should be considered adverse events of special interest and must be captured when spontaneously reported:

Amputations/peripheral revascularizations, changes in growth; drug-induced liver injury/marked hepatic laboratory abnormalities (including liver function test abnormalities accompanied by jaundice or hyperbilirubinemia); hypersensitivity reactions (including anaphylaxis, angioedema, exfoliative skin conditions); severe cutaneous adverse reactions (including bullous pemphigoid); genital mycotic infections; necrotizing fasciitis of the perineum (Fournier's gangrene); urinary tract

¹ American Diabetes Association. 6. Glycemic targets: standards of medical care in diabetes-2019. Diabetes Care. 2019;42:S61- S70.

infections (including urosepsis/pyelonephritis); opportunistic infections; decreased lymphocyte and/or thrombocyte counts; oral soft tissue conditions (e.g., stomatitis); pancreatitis; cardiac failure (including hospitalization for heart failure); acute kidney injury, renal impairment and/or renal failure; volume depletion; bone fractures; hyperlipidemia; hypoglycemic events; hyperglycemic events; ketoacidosis; malignancies (including bladder cancer); and arthralgia.

- *Extraordinary results:* In the course of conducting these studies, you may discover evidence to indicate that there are unexpected safety concerns, unexpected findings of benefit in a smaller sample size, or other unexpected results. In the event of such findings, there may be a need to deviate from the requirements of this Written Request. If you believe this is the case, you must contact the Agency to seek an amendment. It is solely within the Agency's discretion to decide whether it is appropriate to issue an amendment.
- *Drug information:*
 - *dosage form:* Tablets (dapagliflozin 5 and 10 mg; saxagliptin 2.5 and 5 mg)
 - *route of administration:* Oral
 - *regimen:* Once daily

Use an age-appropriate formulation in the study(ies) described above. If an age-appropriate formulation is not currently available, you must develop and test an age-appropriate formulation and, if it is found safe and effective in the studied pediatric population(s), you must seek marketing approval for that age-appropriate formulation.

In accordance with section 505A(e)(2), if

- 1 you develop an age-appropriate formulation that is found to be safe and effective in the pediatric population(s) studied (i.e., receives approval);
- 2 the Agency grants pediatric exclusivity, including publishing the exclusivity determination notice required under section 505A(e)(1) of the Act; and
- 3 you have not marketed the formulation within one year after the Agency publishes such notice, the Agency will publish a second notice indicating you have not marketed the new pediatric formulation.

If you demonstrate that reasonable attempts to develop a commercially marketable formulation have failed, you must develop and test an age-appropriate formulation that can be prepared by a licensed pharmacist, in a licensed pharmacy, from commercially available ingredients. Under these circumstances, you must provide the Agency with documentation of your attempts to develop such a formulation and the reasons such attempts failed. If we agree that you have valid reasons for not developing a commercially marketable, age-appropriate formulation, then you must submit instructions for preparing an age-appropriate formulation from commercially available ingredients that are acceptable to the Agency. If you conduct the requested studies using such a formulation, the following information must be

provided for inclusion in the product labeling upon approval: active ingredients, diluents, suspending and sweetening agents; detailed step-by-step preparation instructions; packaging and storage requirements; and formulation stability information.

Bioavailability of any formulation used in the studies must be characterized, and as needed, a relative bioavailability study comparing the approved drug to the age-appropriate formulation may be conducted in adults.

- *Statistical information, including power of study(ies) and statistical assessments: A statistical analysis plan will be submitted and agreed upon with the Agency.* The primary objective for this study is to find if there is a greater mean reduction in HbA1c after 26 weeks of oral double-blind add-on therapy of dapagliflozin (5 mg or 10 mg [all doses and regimens combined]) or saxagliptin (2.5 mg or 5 mg [all doses and regimens combined]) compared to placebo.

If 243 pediatric subjects are randomized and analyzed, and each treatment analyzed compared to placebo at a two-sided $\alpha = 0.05$ level, this will provide approximately 80% power for each comparison to detect a 0.75% reduction in HbA1c change from baseline assuming a standard deviation of 1.7%.

The statistical analysis plan, including randomization strategy, methods to control type 1 error rate, handling of missing data, and methods for multiplicity adjustment must be agreed upon with the Agency. The primary efficacy analysis will be performed by pooling all doses and all regimens of each drug and comparing to placebo using an analysis of covariance (ANCOVA). For each drug, the comparison versus placebo will be tested at a two-sided α level of 0.05. The intention-to-treat (ITT) estimand (which will be estimated using all available data regardless of premature treatment discontinuation and regardless of glycemic rescue therapy initiation) will be evaluated as the primary estimand.

Secondary analyses will include separate analyses for dapagliflozin and saxagliptin:

- *Labeling that may result from the study(ies):* You must submit proposed pediatric labeling to incorporate the findings of the study(ies). Under section 505A(j) of the Act, regardless of whether the study(ies) demonstrate that dapagliflozin and saxagliptin are safe and effective, or whether such study results are inconclusive in the studied pediatric population(s) or subpopulation(s), the labeling must include information about the results of the study(ies). Under section 505A(k)(2) of the Act, you must distribute to physicians and other health care providers at least annually (or more frequently if the FDA determines that it would be beneficial to the public health), information regarding such labeling changes that are approved as a result of the study(ies).

- *Format and types of reports to be submitted:* You must submit full study reports (which have not been previously submitted to the Agency) that address the issues outlined in this request, with full analysis, assessment, and interpretation. In addition, the reports must include information on the representation of pediatric patients of ethnic and racial minorities. All pediatric patients enrolled in the study(ies) should be categorized using one of the following designations for race: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander or White. For ethnicity, you should use one of the following designations: Hispanic/Latino or Not Hispanic/Latino. If you choose to use other categories, you should obtain agency agreement.

Under section 505A(d)(2)(B) of the Act, when you submit the study reports, you must submit all post-marketing adverse event reports regarding this drug that are available to you at that time. All post-market reports that would be reportable under section 21 CFR 314.80 should include adverse events occurring in an adult or a pediatric patient. In general, the format of the post-market adverse event report should follow the model for a periodic safety update report described in the Guidance for Industry E2C Clinical Safety Data Management: Periodic Safety Update Reports for Marketed Drugs and the Guidance addendum. You are encouraged to contact the reviewing Division for further guidance.

Although not currently required, we request that study data be submitted electronically according to the Study Data Tabulation (SDTM) standard published by the Clinical Data Interchange Standards Consortium (CDISC) provided in the document "Study Data Specifications," which is posted on the <https://www.fda.gov/downloads/ForIndustry/DataStandards/StudyDataStandards/UCM312964.pdf> and referenced in the FDA Guidance for Industry, *Providing Regulatory Submissions in Electronic Format - Human Pharmaceutical Product Applications and Related Submissions Using the eCTD Specifications* at <https://www.fda.gov/downloads/drugs/guidancecomplianceregulatoryinformation/guidance/ucm333969.pdf>.

- *Timeframe for submitting reports of the study(ies):* Reports of the above studies must be submitted to the Agency on or before December 31, 2025. Please keep in mind that pediatric exclusivity attaches only to existing patent protection or exclusivity that would otherwise expire nine (9) months or more after pediatric exclusivity is granted, and FDA has 180 days from the date that the study reports are submitted to make a pediatric exclusivity determination. Therefore, to ensure that a particular patent or exclusivity is eligible for pediatric exclusivity to attach, you are advised to submit the reports of the studies at least 15 months (9 months plus 6 months/180 days for determination) before such patent or exclusivity is otherwise due to expire.
- *Response to Written Request:* Under section 505A(d)(2)(A)(i), within 180 days of receipt of this Written Request you must notify the Agency whether or not you agree

to the Written Request. If you agree to the request, you must indicate when the pediatric studies will be initiated. If you do not agree to the request, you must indicate why you are declining to conduct the study(ies). If you decline on the grounds that it is not possible to develop the appropriate pediatric formulation, you must submit to us the reasons it cannot be developed.

Furthermore, if you agree to conduct the study(ies) but have not submitted the study reports on or before the date specified in the Written Request, the Agency may utilize the process discussed in section 505A(n) of the Act.

For ease of reference, a complete copy of the Written Request, as amended, is attached to this letter.

Reports of the studies that meet the terms of the Written Request dated March 26, 2019, as amended by this letter and by the previous amendments dated October 29, 2021, and June 22, 2022, must be submitted to the Agency on or before December 31, 2025, in order to possibly qualify for pediatric exclusivity extension under Section 505A of the Act.

Submit reports of the studies as a supplement to an approved NDA with the proposed labeling changes you believe are warranted based on the data derived from these studies. When submitting the reports, clearly mark your submission “**SUBMISSION OF PEDIATRIC STUDY REPORTS – PEDIATRIC EXCLUSIVITY DETERMINATION REQUESTED**” in large font, bolded type at the beginning of the cover letter of the submission and include a copy of this letter.

In accordance with section 505A(k)(1) of the Act, FDA must make available to the public the medical, statistical, and clinical pharmacology reviews of the pediatric studies conducted in response to this Written Request within 210 days of submission of your study report(s). These reviews will be posted regardless of the following:

- the type of response to the Written Request (i.e., complete or partial response);
- the status of the application (i.e., withdrawn after the supplement has been filed or pending);
- the action taken (i.e., approval, complete response); or
- the exclusivity determination (i.e., granted or denied).

FDA will post the medical, statistical, and clinical pharmacology reviews on the FDA website.²

² <https://www.fda.gov/Drugs/DevelopmentApprovalProcess/DevelopmentResources/ucm316937.htm>

If you wish to discuss any amendments to this Written Request, submit proposed changes and the reasons for the proposed changes to your application. Clearly mark submissions of proposed changes to this request “**PROPOSED CHANGES IN WRITTEN REQUEST FOR PEDIATRIC STUDIES**” in large font, bolded type at the beginning of the cover letter of the submission. We will notify you in writing if we agree to any changes to this Written Request.

If you have any questions, contact Christine Wright, Regulatory Project Manager, at Anne.Wright@fda.hhs.gov.

Sincerely,

See appended electronic signature page}

Lisa B. Yanoff, M.D.
Deputy Director
Office of Cardiology, Hematology, Endocrinology, and
Nephrology
Office of New Drugs
Center for Drug Evaluation and Research

ENCLOSURE:

- Complete Copy of Written Request as Amended

BACKGROUND:

This study investigates the potential use of dapagliflozin in the treatment of pediatric type 2 diabetes mellitus (T2D) patients, aged 10 to 17 years (inclusive).

The prevalence of T2D among pediatric patients is increasing, concurrent with the obesity epidemic. At the time of study initiation, the only approved treatment options for pediatric patients 10 years of age and older diagnosed with type T2D were metformin and insulin either as monotherapy or in combination. Metformin is limited by gastrointestinal adverse reactions and the need for multiple daily dosing in most cases. In addition, diabetes is a progressive disease, such that patients may need additional antihyperglycemic therapy added to metformin to achieve adequate glycemic control. Dapagliflozin would provide useful additional treatment options for pediatric patients with T2D. Efficacy of dapagliflozin must be established in the pediatric population because it is unknown whether the effects of dapagliflozin are sufficiently similar between adults and the pediatric population. The use of placebo in the proposed dapagliflozin clinical trial is ethically justified as all subjects will be receiving background metformin and/or insulin therapy, and the protocol includes strict inclusion and hyperglycemic rescue criteria, as well as diet, exercise, and diabetic education.

Studies of T2D in patients under 10 years of age, including neonates, are impossible or highly impractical because few of these patients require pharmacologic therapy.

To obtain needed pediatric information on dapagliflozin, the Food and Drug Administration (FDA) is hereby making a formal Written Request, pursuant to Section 505A of the Food, Drug, and Cosmetic Act (the Act), as amended by the Food and Drug Administration Amendments Act of 2007, that you submit information from the studies described below.

This Written Request pertains to dapagliflozin. However, the study described in this Written Request includes another product, saxagliptin. In order to reach agreement on a global pediatric program fulfilling pediatric requirements for both dapagliflozin and saxagliptin, the protocol for this Written Request (Study CV181375) was designed to evaluate the efficacy of dapagliflozin and saxagliptin against a shared placebo control in pediatric T2D subjects. Consequently, elements of Study CV181375 that are specific to the study of saxagliptin are not required to fulfill the dapagliflozin Written Request.

- *Nonclinical study(ies):*

Based on review of the available nonclinical toxicology, no additional animal studies are required at this time to support the clinical studies described in this Written Request.

- *Clinical studies:*

Study 1: A 26-week, multicenter, randomized, placebo-controlled, double-blind, parallel-group, dose-ranging (at least two doses) Phase 3 trial with a 26-week safety

extension period evaluating the safety, efficacy, and pharmacokinetics of dapagliflozin (and saxagliptin) in pediatric patients 10 to less than 18 years of age diagnosed with T2D who are on diet and exercise and metformin, or insulin, or metformin and insulin. Efficacy in children aged 10 to less than 18 years cannot be fully extrapolated and will be determined by the study outlined in the Written Request.

- *Objective of the study:*
 - Efficacy: To compare the mean hemoglobin A1c (HbA1c) change from baseline to week 26 in pediatric T2D subjects: 1) between dapagliflozin (5 mg or 10 mg [all doses and regimens combined]) and placebo and 2) between saxagliptin (2.5 mg or 5 mg [all doses and regimens combined]) and placebo. Dapagliflozin, saxagliptin, or placebo will be added to diet and exercise plus metformin (immediate release [IR] or extended release [XR]) and/or insulin in T2D subjects with inadequate glycemic control (i.e., HbA1c of 6.5 to 10.5%) on diet and exercise and metformin, insulin, or metformin plus insulin.
 - Safety: To evaluate the safety (including the incidence of hypoglycemia and diabetic ketoacidosis [DKA]) and tolerability of dapagliflozin and saxagliptin as add-on to diet, exercise and background antihyperglycemic therapy (i.e., metformin, insulin, or metformin plus insulin) at the Week 26 and Week 52 visits. Additionally, the safety and tolerability of dapagliflozin and saxagliptin monotherapy will be evaluated in a subset of subjects who are randomized to withdraw background metformin.
- *Patients to be studied:*
 - *Age group in which study(ies) will be performed*: 10 to less than 18 years of age.
 - *Number of patients to be studied*: Total enrollment in the study will be at least 243 subjects, including the dapagliflozin, saxagliptin, and placebo arms (randomized in a 1:1:1 ratio, with at least 11% of subjects enrolled from the United States).

Representation of Ethnic and Racial Minorities: The studies must take into account adequate (e.g., proportionate to disease population) representation of children of ethnic and racial minorities. If you are not able to enroll an adequate number of these patients, provide a description of your efforts to do so and an explanation for why they were unsuccessful.

- *Study endpoints:*
 - *Pharmacokinetic (PK)/pharmacodynamic (PD) endpoints*: The pharmacokinetic endpoints for the proposed trial (CV181375) must include assessment of dapagliflozin, saxagliptin, and 5-OH-saxagliptin plasma concentrations as agreed upon in the protocol. All PK/PD assessments should be collected under fasting conditions.

- *Efficacy endpoints:* The primary efficacy endpoint must be the change from baseline in HbA1c at Week 26. HbA1c will be measured at timepoints agreed upon in the protocol.
- Important secondary efficacy endpoints must include change from baseline in fasting plasma glucose (FPG) at Week 26, and the percentage of subjects with baseline HbA1c $\geq 7\%$ who achieve an HbA1c level $< 7.0\%$ at Week 26.
- *Safety endpoints:*
Safety outcomes must include (and agreed upon with the Agency in the protocol):
 - Nature, frequency, severity, and relationship to treatment of all adverse events (AEs)
 - Physical examination findings
 - Vital sign changes
 - Electrocardiogram findings
 - Laboratory parameters, including hematology, biochemistry, and urinalysis
 - Pubertal development (based on Tanner staging)
 - Growth parameters (based on replicated and standardized measures of height and weight)
 - Measures and biomarkers of growth, maturity and bone health, including: height; weight; thyroid-stimulating hormone (TSH), free thyroxine (FT4), luteinizing hormone (LH), follicle-stimulating hormone (FSH), estradiol, total testosterone, insulin-like growth factor-1 (IGF-1), insulin-like growth factor binding protein-3 (IGFBP-3), calcitonin, 25-hydroxy vitamin D, bone alkaline phosphatase, osteocalcin, parathyroid hormone (PTH), cross-linked telopeptide of Type 1 collagen (CTX-1)
 - Incidence of hypoglycemia
- The protocol must include the following adverse events that will be actively monitored:
 - Gastrointestinal AEs
 - Hepatic AEs/liver laboratory abnormalities
 - Hypersensitivity reactions
 - Hypoglycemia using the American Diabetes Association (ADA) definitions³
 - Infection by AE reporting
 - Pancreatitis by AE reporting
 - Renal impairment by serum creatinine/eGFR monitoring
 - Volume depletion (including orthostatic changes in blood pressure and heart rate)

The protocol must include a plan for monitoring all adverse events until symptom resolution or until the condition stabilizes.

³ American Diabetes Association. 6. Glycemic targets: standards of medical care in diabetes-2019. Diabetes Care. 2019;42:S61- S70.

A Data Monitoring Committee (DMC) must be included. See the guidance for industry Establishment and Operation of Clinical Trial Data Monitoring Committees, available at: <http://www.fda.gov/downloads/RegulatoryInformation/Guidances/ucm127073.pdf>

- *Known drug safety concerns and monitoring:* The following are possible safety concerns associated with DPP-4 inhibitors and/or SGLT-2 inhibitors, which should be considered adverse events of special interest and must be captured when spontaneously reported:

Amputations/peripheral revascularizations, changes in growth; drug-induced liver injury/marked hepatic laboratory abnormalities (including liver function test abnormalities accompanied by jaundice or hyperbilirubinemia); hypersensitivity reactions (including anaphylaxis, angioedema, exfoliative skin conditions); severe cutaneous adverse reactions (including bullous pemphigoid); genital mycotic infections; necrotizing fasciitis of the perineum (Fournier's gangrene); urinary tract infections (including urosepsis/pyelonephritis); opportunistic infections; decreased lymphocyte and/or thrombocyte counts; oral soft tissue conditions (e.g., stomatitis); pancreatitis; cardiac failure (including hospitalization for heart failure); acute kidney injury, renal impairment and/or renal failure; volume depletion; bone fractures; hyperlipidemia; hypoglycemic events; hyperglycemic events; ketoacidosis; malignancies (including bladder cancer); and arthralgia.

- *Extraordinary results:* In the course of conducting these studies, you may discover evidence to indicate that there are unexpected safety concerns, unexpected findings of benefit in a smaller sample size, or other unexpected results. In the event of such findings, there may be a need to deviate from the requirements of this Written Request. If you believe this is the case, you must contact the Agency to seek an amendment. It is solely within the Agency's discretion to decide whether it is appropriate to issue an amendment.
- *Drug information:*
 - *dosage form:* Tablets (dapagliflozin 5 and 10 mg; saxagliptin 2.5 and 5 mg)
 - *route of administration:* Oral
 - *regimen:* Once daily

Use an age-appropriate formulation in the study(ies) described above. If an age-appropriate formulation is not currently available, you must develop and test an age-appropriate formulation and, if it is found safe and effective in the studied pediatric population(s), you must seek marketing approval for that age-appropriate formulation.

In accordance with section 505A(e)(2), if

- 1 you develop an age-appropriate formulation that is found to be safe and effective in the pediatric population(s) studied (i.e., receives approval);

- 2 the Agency grants pediatric exclusivity, including publishing the exclusivity determination notice required under section 505A(e)(1) of the Act; and
- 3 you have not marketed the formulation within one year after the Agency publishes such notice, the Agency will publish a second notice indicating you have not marketed the new pediatric formulation.

If you demonstrate that reasonable attempts to develop a commercially marketable formulation have failed, you must develop and test an age-appropriate formulation that can be prepared by a licensed pharmacist, in a licensed pharmacy, from commercially available ingredients. Under these circumstances, you must provide the Agency with documentation of your attempts to develop such a formulation and the reasons such attempts failed. If we agree that you have valid reasons for not developing a commercially marketable, age-appropriate formulation, then you must submit instructions for preparing an age-appropriate formulation from commercially available ingredients that are acceptable to the Agency. If you conduct the requested studies using such a formulation, the following information must be provided for inclusion in the product labeling upon approval: active ingredients, diluents, suspending and sweetening agents; detailed step-by-step preparation instructions; packaging and storage requirements; and formulation stability information.

Bioavailability of any formulation used in the studies must be characterized, and as needed, a relative bioavailability study comparing the approved drug to the age-appropriate formulation may be conducted in adults.

- *Statistical information, including power of study(ies) and statistical assessments: A statistical analysis plan will be submitted and agreed upon with the Agency. The primary objective for this study is to find if there is a greater mean reduction in HbA1c after 26 weeks of oral double-blind add-on therapy of dapagliflozin (5 mg or 10 mg [all doses and regimens combined]) or saxagliptin (2.5 mg or 5 mg [all doses and regimens combined]) compared to placebo.*

If 243 pediatric subjects are randomized and analyzed, and each treatment analyzed compared to placebo at a two-sided $\alpha = 0.05$ level, this will provide approximately 80% power for each comparison to detect a 0.75% reduction in HbA1c change from baseline assuming a standard deviation of 1.7%.

The statistical analysis plan, including randomization strategy, methods to control type 1 error rate, handling of missing data, and methods for multiplicity adjustment must be agreed upon with the Agency. The primary efficacy analysis will be performed by pooling all doses and all regimens of each drug and comparing to placebo using an analysis of covariance (ANCOVA). For each drug, the comparison versus placebo will be tested at a two-sided α level of 0.05. The intention-to-treat (ITT) estimand (which will be estimated using all available data regardless of premature treatment

discontinuation and regardless of glycemic rescue therapy initiation) will be evaluated as the primary estimand.

Secondary analyses will include separate analyses for dapagliflozin and saxagliptin:

- *Labeling that may result from the study(ies):* You must submit proposed pediatric labeling to incorporate the findings of the study(ies). Under section 505A(j) of the Act, regardless of whether the study(ies) demonstrate that dapagliflozin and saxagliptin are safe and effective, or whether such study results are inconclusive in the studied pediatric population(s) or subpopulation(s), the labeling must include information about the results of the study(ies). Under section 505A(k)(2) of the Act, you must distribute to physicians and other health care providers at least annually (or more frequently if the FDA determines that it would be beneficial to the public health), information regarding such labeling changes that are approved as a result of the study(ies).
- *Format and types of reports to be submitted:* You must submit full study reports (which have not been previously submitted to the Agency) that address the issues outlined in this request, with full analysis, assessment, and interpretation. In addition, the reports must include information on the representation of pediatric patients of ethnic and racial minorities. All pediatric patients enrolled in the study(ies) should be categorized using one of the following designations for race: American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander or White. For ethnicity, you should use one of the following designations: Hispanic/Latino or Not Hispanic/Latino. If you choose to use other categories, you should obtain agency agreement.

Under section 505A(d)(2)(B) of the Act, when you submit the study reports, you must submit all post-marketing adverse event reports regarding this drug that are available to you at that time. All post-market reports that would be reportable under section 21 CFR 314.80 should include adverse events occurring in an adult or a pediatric patient. In general, the format of the post-market adverse event report should follow the model for a periodic safety update report described in the Guidance for Industry E2C Clinical Safety Data Management: Periodic Safety Update Reports for Marketed Drugs and the Guidance addendum. You are encouraged to contact the reviewing Division for further guidance.

Although not currently required, we request that study data be submitted electronically according to the Study Data Tabulation (SDTM) standard published by the Clinical Data Interchange Standards Consortium (CDISC) provided in the document "Study Data Specifications," which is posted on the <https://www.fda.gov/downloads/ForIndustry/DataStandards/StudyDataStandards/UCM312964.pdf> and referenced in the FDA Guidance for Industry, *Providing Regulatory Submissions in Electronic Format - Human Pharmaceutical Product Applications and Related Submissions Using the eCTD Specifications* at

<https://www.fda.gov/downloads/drugs/guidancecomplianceregulatoryinformation/guidance/ucm333969.pdf>.

- *Timeframe for submitting reports of the study(ies):* Reports of the above studies must be submitted to the Agency on or before December 31, 2025. Please keep in mind that pediatric exclusivity attaches only to existing patent protection or exclusivity that would otherwise expire nine (9) months or more after pediatric exclusivity is granted, and FDA has 180 days from the date that the study reports are submitted to make a pediatric exclusivity determination. Therefore, to ensure that a particular patent or exclusivity is eligible for pediatric exclusivity to attach, you are advised to submit the reports of the studies at least 15 months (9 months plus 6 months/180 days for determination) before such patent or exclusivity is otherwise due to expire.
- *Response to Written Request:* Under section 505A(d)(2)(A)(i), within 180 days of receipt of this Written Request you must notify the Agency whether or not you agree to the Written Request. If you agree to the request, you must indicate when the pediatric studies will be initiated. If you do not agree to the request, you must indicate why you are declining to conduct the study(ies). If you decline on the grounds that it is not possible to develop the appropriate pediatric formulation, you must submit to us the reasons it cannot be developed.

Furthermore, if you agree to conduct the study(ies) but have not submitted the study reports on or before the date specified in the Written Request, the Agency may utilize the process discussed in section 505A(n) of the Act.

This is a representation of an electronic record that was signed electronically. Following this are manifestations of any and all electronic signatures for this electronic record.

/s/

LISA B YANOFF
02/15/2023 02:56:14 PM