FDA approves Lyumjev® (insulin lispro-aabc injection) 100 units/mL for use in insulin pumps

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U.S. approval of pump use for Lilly's novel insulin is latest development designed to help people with diabetes manage blood sugar levels

INDIANAPOLIS, Aug. 16, 2021 /PRNewswire/ -- The U.S. Food and Drug Administration (FDA) has approved an expanded label for Eli Lilly and Company's (NYSE: LLY) rapid-acting insulin, Lyumjev® (insulin lispro-aabc injection) 100 units/mL indicated to improve glycemic control in adults with type 1 and type 2 diabetes, to include administration via continuous subcutaneous insulin infusion (CSII) with an insulin pump.

Lyumjev, a novel formulation of insulin lispro developed to speed the absorption of insulin into the bloodstream and reduce A1C levels, was approved by the FDA in June 2020. As a rapid-acting mealtime insulin, Lyumjev helps control blood sugar levels after meals in adults with diabetes, similar to how natural insulin works after meals in people without diabetes.

"Insulin pumps are an important delivery option for people with diabetes – many of whom struggle with high postmeal blood sugar levels," said Leonard Glass M.D., F.A.C.E., vice president of Medical Affairs, Lilly. "The expansion of the Lyumjev label to include use in an insulin pump provides a new and important choice for people with diabetes. It is an exciting development for pump users seeking to manage their blood sugar levels and reduce postmeal spikes."

The approval was based on results from PRONTO-PUMP-2, a phase 3 treat-to-target study that confirmed the efficacy and safety of Lyumjev when used in insulin pumps in adults with type 1 diabetes. The study met the primary endpoint of noninferior A1C reduction from baseline to week 16 compared to Humalog. Lyumjev demonstrated superior reduction in blood glucose spikes at both one and two hours after a test meal compared to Humalog.[1]

Lyumjev is available in the U.S. and in several global markets, including Japan and the European Union, where it is also approved for use in insulin pumps. People with diabetes should seek guidance from their healthcare providers and refer to the insulin pump maker instructions to see if Lyumjev U-100 can be used with their pump.

Lilly offers several solutions to help eligible people who need assistance accessing their Lilly insulin, including Lyumjev, at the Lilly Diabetes Solution Center at (833) 808-1234 and www.insulinaffordability.com. People who have commercial insurance can visit www.Lyumjev.com to access the Lyumjev Savings Card. Lyumjev is also included in the Lilly Insulin Value Program for people with commercial insurance or no insurance at all, as well as in the Seniors Savings Model for people in the Medicare Part D program—allowing them to fill their monthly prescription of Lyumjev for $35. Other restrictions may apply.

About the PRONTO-PUMP-2 Study

PRONTO-PUMP-2 was a phase 3, 16-week, randomized (1:1), active controlled, double-blind treat-to-target multinational study that evaluated the efficacy and safety of Lyumjev versus Humalog (insulin lispro injection) 100 units/mL in 432 adult patients with type 1 diabetes (T1D) using insulin pumps. Following a 2-week lead-in period, patients were randomized in a double-blind manner to either Lyumjev (n=215) or Humalog (n=217), both 100 units/mL. Patients were instructed to deliver bolus doses 0-2 minutes before meals. The primary objective was noninferiority (noninferiority margin [NIM]=0.4% for A1C) of Lyumjev to Humalog on change in A1C from baseline to week 16. Key multiplicity-adjusted secondary objectives included superiority of Lyumjev to Humalog at week 16 for 1- and 2-hour postprandial glucose during a meal test and duration of time in range (70-180 mg/dL) during daytime and over a 24-hour period.[1]

PURPOSE and SAFETY SUMMARY

Important Facts About LYUMJEV® (LOOM-jehv) and Humalog® (HU-ma-log)

- Lyumjev is also known as insulin lispro-aabc injection. Humalog is also known as insulin lispro injection.
- Lyumjev is a fast-acting insulin. Lyumjev is used to control high blood sugar in adults with diabetes. Humalog is a fast-acting insulin. Humalog is used to control high blood sugar in adults and children with diabetes. Lyumjev and Humalog are available only with a prescription.
- Lyumjev comes in two strengths: U-100 (100 units per milliliter) and U-200 (200 units per milliliter). Lyumjev U-200 contains **2 times as much insulin** in 1 milliliter as Lyumjev U-100. Humalog U-100 contains 100 units of insulin per milliliter. The dose window of the pen shows the number of insulin units to be delivered.
- It is not known if Lyumjev is safe and effective for children. It is not known if Humalog is safe and effective for children with type 2 diabetes or for children younger than 3 years of age with type 1 diabetes as there were no studies done with Humalog in these groups of children. If your doctor decides to give your child any insulin products, he or she may give you special instructions.

All Lyumjev and Humalog products contain insulin lispro.

Warnings

Do not take Lyumjev or Humalog if you have:

- symptoms of low blood sugar (hypoglycemia)
- an allergy to insulin lispro-aabc, Humalog, or any of the ingredients in Lyumjev or Humalog.

Do not reuse needles or share your insulin injection supplies with other people. This includes your:

- prefilled pen for use by a single patient
- cartridges
- reusable pen that works with Lilly 3mL cartridges available for Humalog
- needles
- syringes

You or the other person can get a serious infection. This can happen even if you change the needle.

Do not change the type of insulin you take or your dose, unless your doctor tells you to. This could cause low or high blood sugar, which could be serious.

Do not use a syringe to remove Lyumjev or Humalog from your prefilled pen. This can cause you to take too much insulin. Taking too much insulin can lead to severe low blood sugar. This may result in seizures or death.

Lyumjev and Humalog may cause serious side effects. Some of these can lead to death. The possible serious side effects are:

- **Low blood sugar.** This can cause:

- dizziness or lightheadedness
- headache
- shakiness
- irritability
- sweating
- blurred vision
- fast heartbeat
- mood change
- confusion
- slurred speech
- anxiety
- hunger

If you are at risk of having severely low blood sugar, your doctor may prescribe a glucagon emergency kit. These are used when your blood sugar becomes too low and you are unable to take sugar by mouth. Glucagon helps your body release sugar into your bloodstream.

- **Low potassium in your blood.** This can lead to severe breathing problems, irregular heartbeat, and death.

- **Severe allergic reaction.**
  Get emergency help right away if you have:

- a rash over your whole body
- sweating
- extreme drowsiness
- swelling of your face, tongue, or throat
- trouble breathing
- a faint feeling
- dizziness
- a fast heartbeat
- shortness of breath
- confusion

- **Heart failure.** Taking diabetes pills called thiazolidinediones (thIE-uh-zOH-li-dEEn-dIE-OHns), or "TZDs," with Lyumjev or Humalog may cause heart failure in some people. This includes people who do not have any heart problems. If you have heart failure, it may get worse if you take TZDs with Lyumjev or Humalog. Tell your doctor if you have any new symptoms of heart failure, or if they get worse. Some symptoms of heart failure include: shortness of breath, swelling of ankles and feet, and sudden weight gain. Your doctor may need to change or stop treatment with TZDs and your insulin lispro product.

- **Sudden onset of high blood sugar and high amounts of ketones in your blood or urine.** You can have these serious side effects when your insulin pump or infusion set is not working the right way, if there are handling errors, or if your insulin is no longer effective. For these reasons, you may not get the right amount of insulin, so always keep extra insulin and injection supplies with you.

Common side effects

The most common side effects of **Lyumjev and Humalog** are:

- low blood sugar
- reactions or pain at the injection or infusion site with insulin pump use
- itching
- weight gain
- allergic reactions
- skin thickening or pits at the injection or infusion site
- rash

Other most common side effects with Humalog include swelling of your hands or feet.

These are not all of the possible side effects. Tell your doctor if you have any side effects. You can report side effects at 1-800-FDA-1088 or www.fda.gov/medwatch.

Before using

Talk with your doctor about low blood sugar and how to manage it. Also tell your doctor:

- about all of the medicines you take, including over-the-counter medicines, vitamins, and herbal supplements.
- about any other prescription medicines you take, especially ones called TZDs.
- about all of your medical conditions, including if you have heart failure or other heart, liver, or kidney problems.
- if you are pregnant, breastfeeding, or plan to become pregnant or breastfeed.

How to take

Read the **Instructions for Use** that come with your **Lyumjev or Humalog**. Be sure to take your **Lyumjev or Humalog** and **check your blood sugar levels** exactly as your doctor tells you to. Your doctor may tell you to change your dose because of illness, increased stress, or changes in your weight, diet, or physical activity level. He or she may also tell you to change the amount or time of your dose because of other medicines or different types of insulin you take.

Before injecting your Lyumjev or Humalog

You can inject your insulin dose yourself, or you can have a trained caregiver inject it for you. Make sure you or your caregiver:

- Check the insulin label before each injection. This will help you make sure that you are taking the correct insulin.
- Use a new needle for each injection. You can get a serious infection or the wrong dose of insulin if you reuse needles.
- Change (rotate) where you inject your insulin with each dose. This can reduce your chance of getting pits, lumps, or thickened skin where you inject your insulin. **Do not** inject your insulin into the exact same spot or where the skin has pits or lumps. **Avoid** injecting into thickened, tender, bruised, scaly, hard, scarred, or damaged skin.

When you are ready to inject

- Inject Lyumjev under your skin at the beginning of a meal or within 20 minutes after you start eating a meal.
- Inject Humalog under your skin within 15 minutes before or right after you eat a meal.

Staying safe while taking your Lyumjev or Humalog

To stay safe while taking your insulin, be sure to **never** inject Lyumjev U-200 in your vein, muscle, or with an insulin pump. Also be sure **not to**:

- mix Lyumjev with other insulins or liquids
- drive or use heavy machinery until you know how your Lyumjev or Humalog affects you.
- drink alcohol or use other medicines that contain alcohol when taking your Lyumjev or Humalog.

Learn more

For more information, call 1-800-545-5979 or go to www.Lyumjev.com or www.humalog.com

This summary provides basic information about Lyumjev and Humalog. It does not include all information known about these medicines. Read the information that comes with your prescription each time your prescription is filled. This information does not take the place of talking with your doctor. Be sure to talk to your doctor or other healthcare provider about your insulin lispro product and how to take it. Your doctor is the best person to help you decide if these medicines are right for you.

Lyumjev® and Humalog® are registered trademarks owned or licensed by Eli Lilly and Company, its subsidiaries, or affiliates.

Please see Lyumjev Full Prescribing Information including Patient Prescribing Information
Please see Humalog Full Prescribing Information including Patient Prescribing Information

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About Diabetes
Approximately 34 million Americans[2] (just over 1 in 10) and an estimated 463 million adults worldwide[3] have diabetes. Type 2 diabetes is the most common type internationally, accounting for an estimated 90 to 95 percent of all diabetes cases in the United States alone[3]. Diabetes is a chronic disease that occurs when the body does not properly produce or use the hormone insulin.

About Lilly Diabetes
Lilly has been a global leader in diabetes care since 1923, when we introduced the world's first commercial insulin. Today we are building upon this heritage by working to meet the diverse needs of people with diabetes and those who care for them. Through research, collaboration and quality manufacturing we strive to make life better for people affected by diabetes and related conditions. We work to deliver breakthrough outcomes through innovative solutions—from medicines and technologies to support programs and more. For the latest updates, visithttp://www.lillydiabetes.com/ or follow us on Twitter: @LillyDiabetes and Facebook: LillyDiabetesUS.

About Eli Lilly and Company
Lilly is a global health care leader that unites caring with discovery to create medicines that make life better for people around the world. We were founded more than a century ago by a man committed to creating high-quality medicines that meet real needs, and today we remain true to that mission in all our work. Across the globe, Lilly employees work to discover and bring life-changing medicines to those who need them, improve the understanding and management of disease, and give back to communities through philanthropy and volunteerism. To learn more about Lilly, please visit us at lilly.com and lilly.com/newsroom. P-LLY

Lilly Cautionary Statement Regarding Forward-Looking Statements
This press release contains forward-looking statements (as that term is defined in the Private Securities Litigation Reform Act of

1995) about Lyumjev® (insulin lispro-aabc injection) and Humalog (insulin lispro injection) as treatments to improve glycemic control in adults with type 1 and type 2 diabetes and reflects Lilly's current beliefs and expectations. However, as with any pharmaceutical product or medical device, there are substantial risks and uncertainties in the process of drug research, development, and commercialization. Among other things, there is no guarantee that future study results will be consistent with study results to date, that Lyumjev will be commercially successful, or that the company will meet its anticipated timelines for the roll out of this medicine. For further discussion of these and other risks and uncertainties, see Lilly's most recent Form 10-K and Form 10-Q filings with the United States Securities and Exchange Commission. Except as required by law, Lilly undertakes no duty to update forward-looking statements to reflect events after the date of this release.

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References

1. Warren, Mark, et al. Improved postprandial glucose control with ultra rapid lispro versus lispro with continuous subcutaneous insulin infusion in type 1 diabetes: PRONTO-Pump-2. Diabetes, Obesity and Metabolism. 2021; 23(7): 1552-1561.
2. Centers for Disease Control and Prevention. National Diabetes Statistics Report, 2020. Atlanta, GA: Centers for Disease Control and Prevention, U.S. Dept. of Health and Human Services; 2020.
3. International Diabetes Federation. IDF Diabetes Atlas, 9th edn. Brussels, Belgium: International Diabetes Federation, 2019. Available at: http://diabetesatlas.org.

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