LAI Formulation Technologies

LAIs enable extended dosing intervals by prolonging drug absorption, which provides sustained plasma concentrations over time[1]

Awareness of differences in LAI formulation technologies may help inform decision-making to match individual patient needs, goals, and preferences[2]

Provide long-term, consistent drug exposure from a single injection[1]

Result in stable plasma levels and awareness of nonadherence[1,2]

Oil based[3]

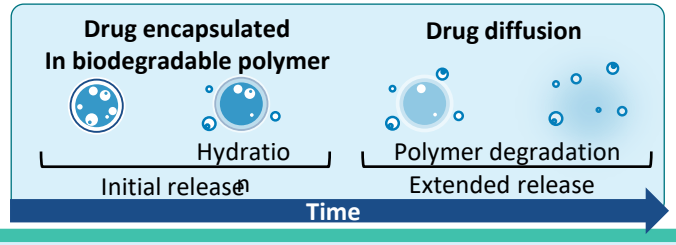
- More common for the typical/first-generation LAIs
- Esterified prodrugs can be suspended in oil, allowing for slow release from fat tissues and hydrolysis from the lipid tail

Esterified prodrugs*[,3-5]

- A lipid tail is attached to the drug using esterification and/or a linker molecule, which extends the $t_{1/2}$ of the drug

Microencapsulation*[,3,4]

- Drug particles are dispersed in biodegradable polymers
- This forms a microsphere, which slows the release of a drug



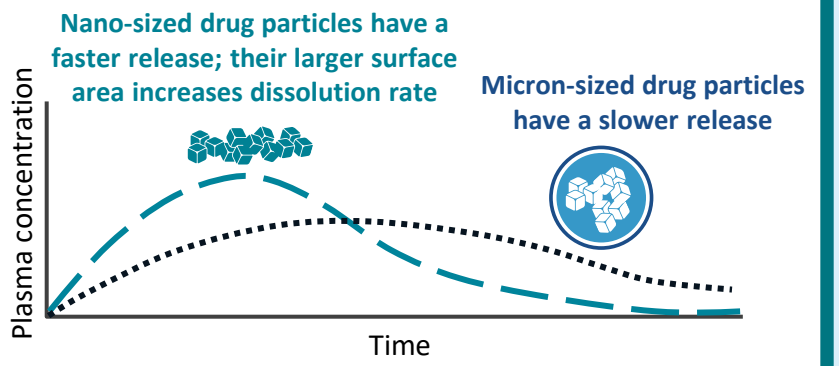
Click on the formulation to learn more

Bioresorbable depot[1,3,6]

- Biodegradable polymer delivery system
- Drug is dissolved and suspended in a polymer that solidifies upon contact with tissue fluids

Particles*[,4,7,8]

Dissolution is proportional to particle size



*Aqueous. API, active pharmaceutical ingredient; LAI, long-acting injectable; MSL, medical science liaison; PEG, polyethylene glycol; PLA, polylactic acid; $t_{1/2}$, half-life.

1. Correll CU, et al. *CNS Drugs*. 2021;35(1):39-59. 2. Stevens GL, et al. Early Interv Psychiatry. 2016;10(5):365-377. 3. Shi Y, et al. *Acta Pharm Sin B*. 2021;11(8):2396-2415. 4. Remenar JF. *Mol Pharm*. 2014;11(6):1739-1749. 5. Shin M, et al. *Biomolecules*. 2020;10(1):70. 6. Roberge C, et al. *J Control Release*. 2020;319:416-427. 7. Jain R, et al. *CNS Spectr*. 2020;25(3):323-330. 8. Hard ML, et al. *Eur J Drug Metab Pharmacokinet*. 2018;43(4):461-469.

More questions?
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