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WE GUARD

Web-based Education | Guidelines Updates, Advances & Researches in Dyslipidemia

Module 1 Part 2:

Guidelines-Based Dyslipidemia Management

Z5-7295 Expiration Date: 16/08/2025

AGENDA

01 Recommended ESC/EAS treatment targets and goals for CVD prevention

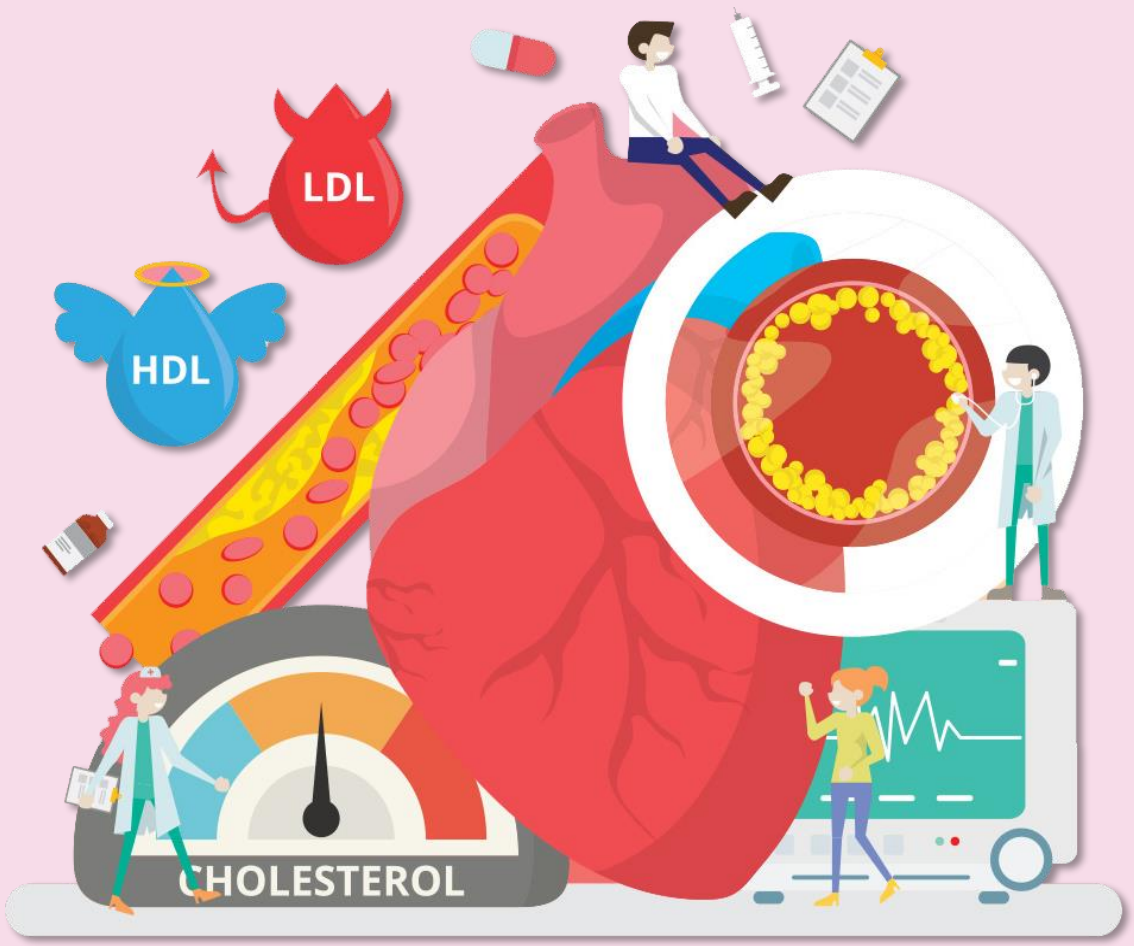
02 Non-pharmacological Management of Dyslipidemia

03 Pharmacological Management of Dyslipidemia

04 Treatment algorithm for pharmacological LDL lowering.

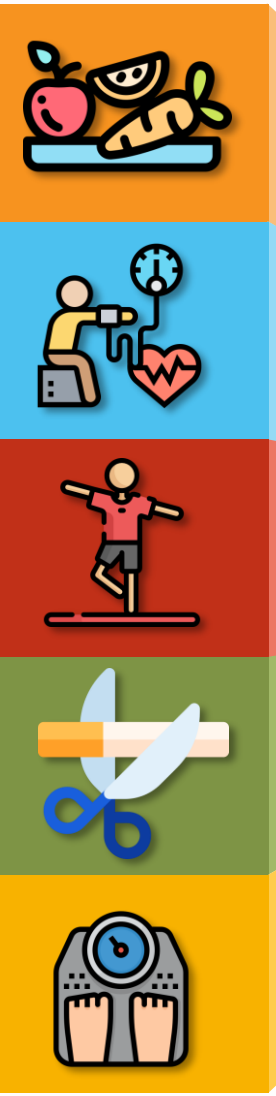
05 Recommendations for drug treatment of patients with hypertriglyceridemia

06 Recommendations for the treatment of dyslipidaemias in older people (aged >65 years)



1. Recommended ESC/EAS treatment targets and goals for CVD prevention

Recommended ESC/EAS treatment targets and goals for CVD prevention[1]



Diet	Healthy diet low in saturated fat with a focus on wholegrain products, vegetables, fruit, and fish.
Blood pressure	<140/90 mmHg.a
Physical activity	3.57 h moderately vigorous physical activity per week or 3060 min most days
Smoking	No exposure to tobacco in any form.
Body weight	BMI 20-25 kg/m^2, and waist circumference <94 cm (men) and <80 cm (women).

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1. Zodda, D., Giammona, R., & Schifilliti, S. (2018). Treatment Strategy for Dyslipidemia in Cardiovascular Disease Prevention: Focus on Old and New Drugs. Pharmacy (Basel, Switzerland), 6(1), 10. https://doi.org/10.3390/pharmacy6010010.

Recommended ESC/EAS treatment targets and goals for CVD prevention[1]

LDL-C

1 VERY-HIGH RISK IN PRIMARY OR SECONDARY PREVENTION:

❶ A therapeutic regimen that achieves ≥ 50% LDL-C reduction from baseline and an LDL-C goal of <1.4 mmol/L (<55 mg/dL).

❷ No current statin use: this is likely to require high-intensity LDL-lowering therapy.

❸ Current LDL-lowering treatment: an increased treatment intensity is required.

1A HIGH RISK:

A therapeutic regimen that achieves ≥ 50% LDL-C reduction from baseline and an LDL-C goal of <1.8 mmol/L (<70 mg/dL).

2 MODERATE RISK:

A goal of <2.6 mmol/L (<100 mg/dL).

3 LOW RISK:

A goal of <3.0 mmol/L (<116 mg/dL).

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Recommended ESC/EAS treatment targets and goals for CVD prevention[1]

Non-HDL-C

1 VERY-HIGH RISK

Secondary goal is <2.2 (<85 mg/dL)

2 HIGH RISK:

A goal of < 2.6 mmol/L (<100 mg/dL).

3 MODERATE RISK

A goal of < 3.4 mmol/L (< 130 mg/dL).

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Recommended ESC/EAS treatment targets and goals for CVD prevention[1]

ApoB

1 VERY-HIGH RISK

Secondary goal is <65 mg/dL

2 HIGH RISK:

A goal of < 80 mg/dL

3 MODERATE RISK

A goal of 100 mg/dL

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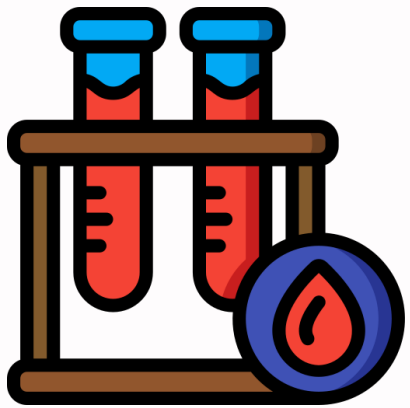
Recommended ESC/EAS treatment targets and goals for CVD prevention[1]

Triglycerides and Diabetes



01

TRIGLYCERIDES :

No goal, but <1.7 mmol/L (<150 mg/dL) indicates lower risk and higher levels indicate a need to look for other risk factors.

02

DIABETES :

HbA1c: <7% (<53 mmol/mol).

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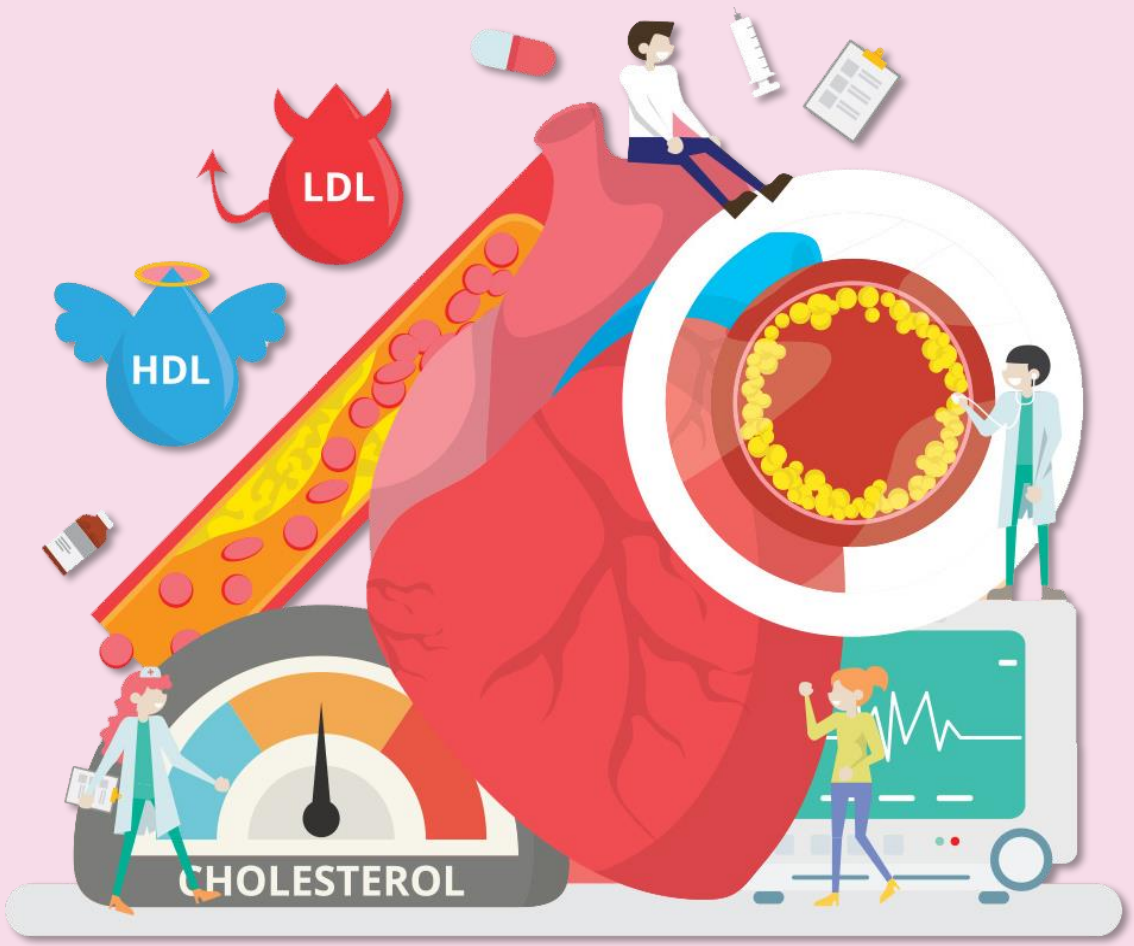
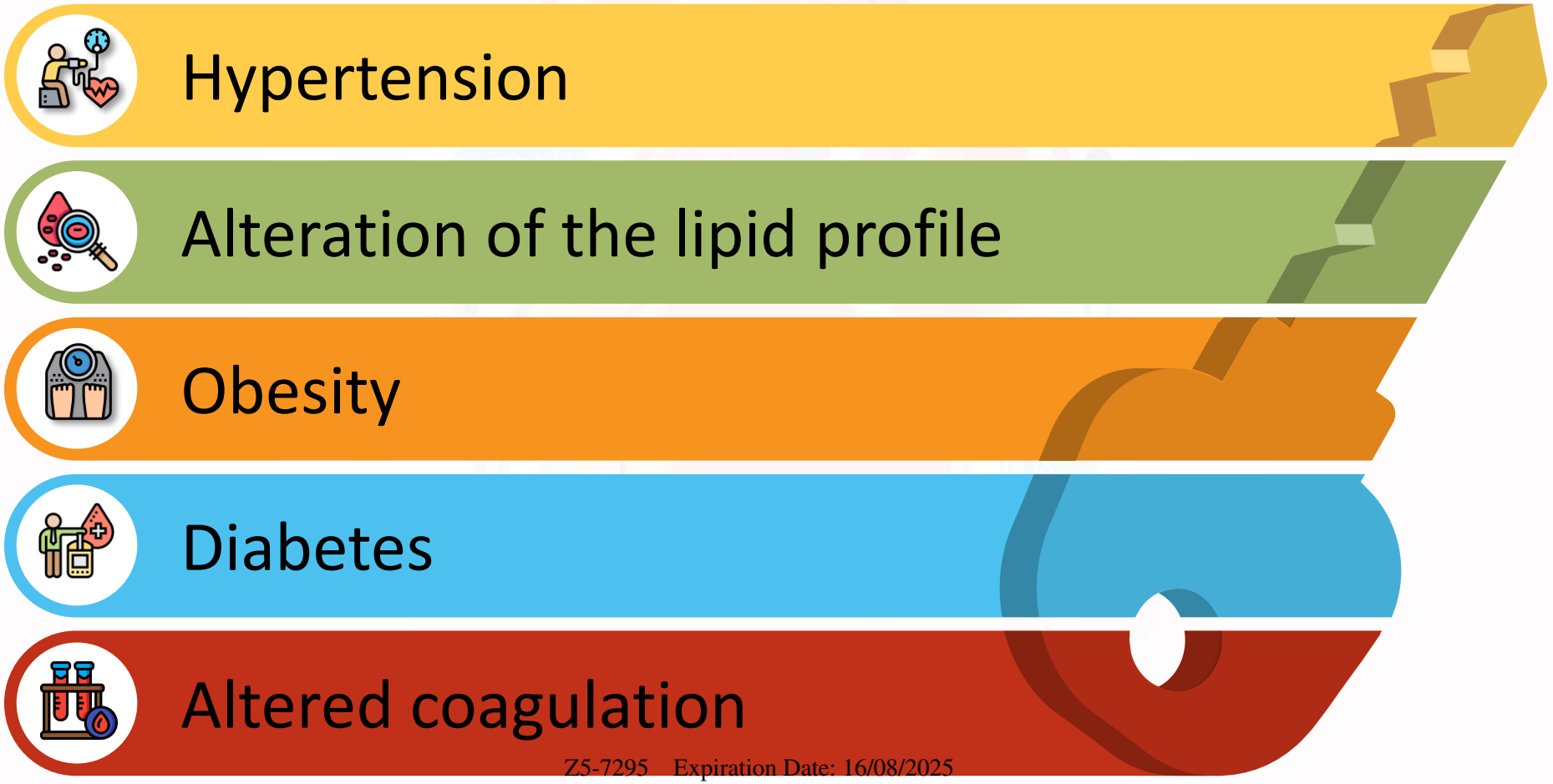


2. Non-pharmacological Management of Dyslipidemia

Diet(2)

✓One of the most important aspects of human life related to atherogenesis is the dietary pattern.

☠ **Nutrients are linked to many atherosclerosis risk factors:**



2. Mach F, Baigent C, Catapano AL, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. Eur Heart J. 2020;41(1):111–188. doi:10.1093/eurheartj/ehz455.

Diet(2)

Diet is a multi-component mixture of many nutrients which may interact with one another. We still do not have a definitive study of the impact of nutrients on CVD.

✓**Many approaches have been used to examine the influence of nutrition on atherosclerosis :**

01 Cross population comparisons

02 Nutritional questionnaires administered to large population groups

03 Interventional studies.

2. Mach F, Baigent C, Catapano AL, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. Eur Heart J. 2020;41(1):111–188. doi:10.1093/eurheartj/ehz455.

Diet(2)

✓Notes about these approaches :

DIET

Some of these approaches can be very informative about individual nutrients.

Metabolic ward studies where the nutrients are varied in a specific fashion without changing total calories or nutrient balance, are most likely to yield relatively definitive answers.

However, they are not closely related to the real lives of free living peoples.

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Diet(2)

✓The primary dietary determinants of hypercholesterolemia are 

particularly :

Dietary fat

Dietary fat which is almost completely absorbed in the intestinal tract

Cholesterol

The absorption of cholesterol is incomplete and is regulated at the intestinal epithelium.

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Diet(2)

Dietary fat

Saturated fat consumption should be **<10%** of the total caloric intake .

Saturated fat should be further reduced to **<7%** in the presence of high cholesterol level.

fat intakes **>35-40%** of calories are associated with ↑ intakes of saturated fat and calories.

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Diet(2)

Dietary fat

01 Conversely, low intakes of fats and oils increase the risk of inadequate intakes of vitamin E and of essential fatty acids, and may contribute to a **reduction of HDL-C.**

02 Fat intake should predominantly come from sources of monounsaturated fatty acids, including both **n-6 and n-3 PUFAs**.

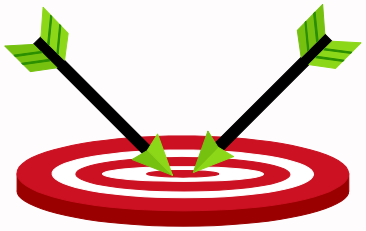
03 The cholesterol intake in the diet should be reduced **(<300 mg/day)**, particularly in people with high plasma cholesterol levels.

Diet(2)

Dietary carbohydrate and fiber

Dietary carbohydrate has a ‘neutral’ effect on LDL-C, although excessive consumption is represented by untoward effects on plasma TGs and HDL-C levels.

✓Soluble Dietary fiber which is present in legumes, fruits, vegetables, and wholegrain cereals has a hypocholesterolaemic effect and represents a good dietary substitute for saturated fat.



1. To ↑↑ the effects of the diet on LDL-C levels
2. To ↓↓ the untoward effects of a high-carbohydrate diet on other lipoproteins.

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Diet(2)

Dietary carbohydrate and fiber

45-55%

Carbohydrate intake should range between **45-55%** of total energy intake

A fat modified diet with **25-40 g** per day of total dietary fiber, is well tolerated, and effective for plasma lipid control

25-40 g

10%

Intake of added sugar should not exceed **10%** of total energy

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Smoking cessation[2]

Smoking cessation has clear benefits regarding overall CV risk, and specifically on **HDL .**

Body weight reduction and physical activity[2]

01 Body weight reduction, even if modest (**5-10%** of basal body weight), improves lipid abnormalities and ↓ CV risk factors.

02 Weight reduction can be achieved by decreasing the consumption of energy-dense foods, inducing a caloric deficit of **300-500 kcal/day.**

03 People with dyslipidemia should engage in regular physical exercise of moderate intensity for **≥ 30 min/day**, even if they are not overweight.

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Food choices to ↓ LDL and improve lipoprotein profile (ESC/EAS)[2]

	To be preferred	To be used in moderation	To be chosen occasionally in limited amounts
Cereals	Wholegrains	Refined bread, rice, and pasta, biscuits, corn flakes	Pastries, muffins, pies, croissants
Vegetables	Raw and cooked vegetables	Potatoes	Vegetables prepared in butter or cream
Legumes	Lentils, beans, fava beans, peas		
Fruit	Fresh or frozen fruit	Dried fruit, jelly, jam, canned fruit, sorbets, ice lollies, fruit juice	
Sweets	Non-caloric sweeteners	Sucrose, honey, chocolate, sweets/ candies	Cakes, ice creams, fructose, soft drinks
Meat and fish	Lean and oily fish, poultry without skin	Lean cuts of beef, lamb, pork, and veal, seafood, shellfish	Sausages, salami, bacon, spare ribs, hot dogs, organ meats

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Food choices to ↓ LDL and improve lipoprotein profile (ESC/EAS)[2]

	To be preferred	To be used in moderation	To be chosen occasionally in limited amounts
Dairy food and eggs	Skimmed milk and yoghurt	Low-fat milk, low-fat cheese and other milk products, eggs	Regular cheese, cream, whole milk and yoghurt
Cooking fat and dressings	Vinegar, mustard, fat-free dressings	Olive oil, non-tropical vegetable oils, soft margarines, salad dressing, mayonnaise, ketchup	Trans fats and hard margarines (better to avoid them), palm and coconut oils, butter, lard, bacon fat
Nuts/seeds		All, unsalted (except coconut)	Coconut
Cooking procedures	Grilling, boiling, steaming	Stir-frying, roasting	Frying

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Impact of specific lifestyle changes on lipid levels (ESC/EAS)[2]

	Magnitude of the effect	Level
Lifestyle interventions to reduce TC and LDL-C levels		
Avoid dietary trans fats	++	A
Reduce dietary saturated fats	++	A
Increase dietary fibre	++	A
Use functional foods enriched with phytosterols	++	A
Use red yeast rice nutraceuticals	++	A
Reduce excessive body weight	++	A
Reduce dietary cholesterol	+	B
Increase habitual physical activity	+	B

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Impact of specific lifestyle changes on lipid levels (ESC/EAS)[2]

	Magnitude of the effect	Level
Lifestyle interventions to reduce TG-rich lipoprotein levels		
Reduce excessive body weight	+	A
Reduce alcohol intake	+++	A
Increase habitual physical activity	++	A
Reduce total amount of dietary carbohydrates	++	A
Use supplements of n-3 polyunsaturated fats	++	A
Reduce intake of mono- and disaccharides	++	B
Replace saturated fats with mono- or polyunsaturated fats	+	B

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Impact of specific lifestyle changes on lipid levels (ESC/EAS)[2]

	Magnitude of the effect	Level
Lifestyle interventions to increase HDL-C levels		
Avoid dietary trans fats	++	A
Increase habitual physical activity	+++	A
Reduce excessive body weight	++	A
Reduce dietary carbohydrates and replace them with unsaturated fats	++	A
Modest consumption in those who take alcohol may be continued	++	B
Quit smoking	+	B

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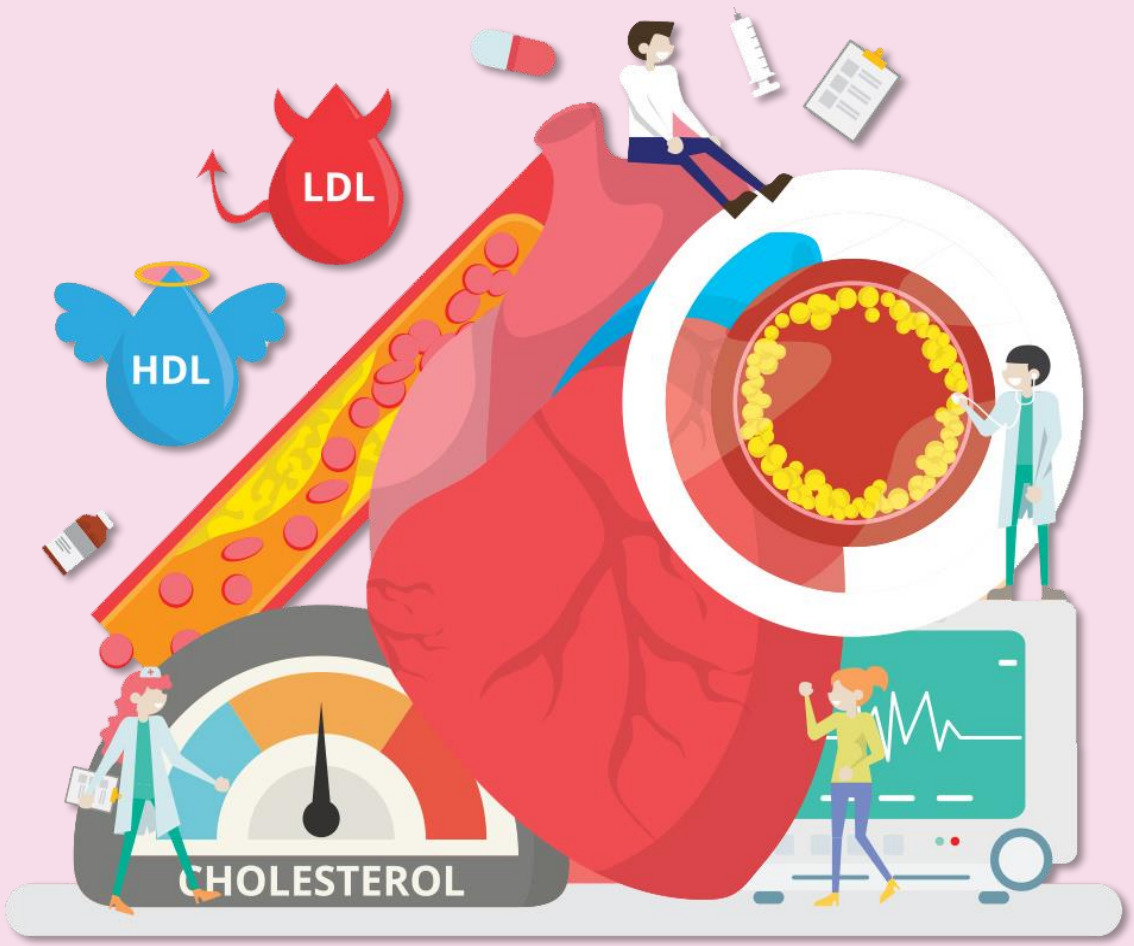
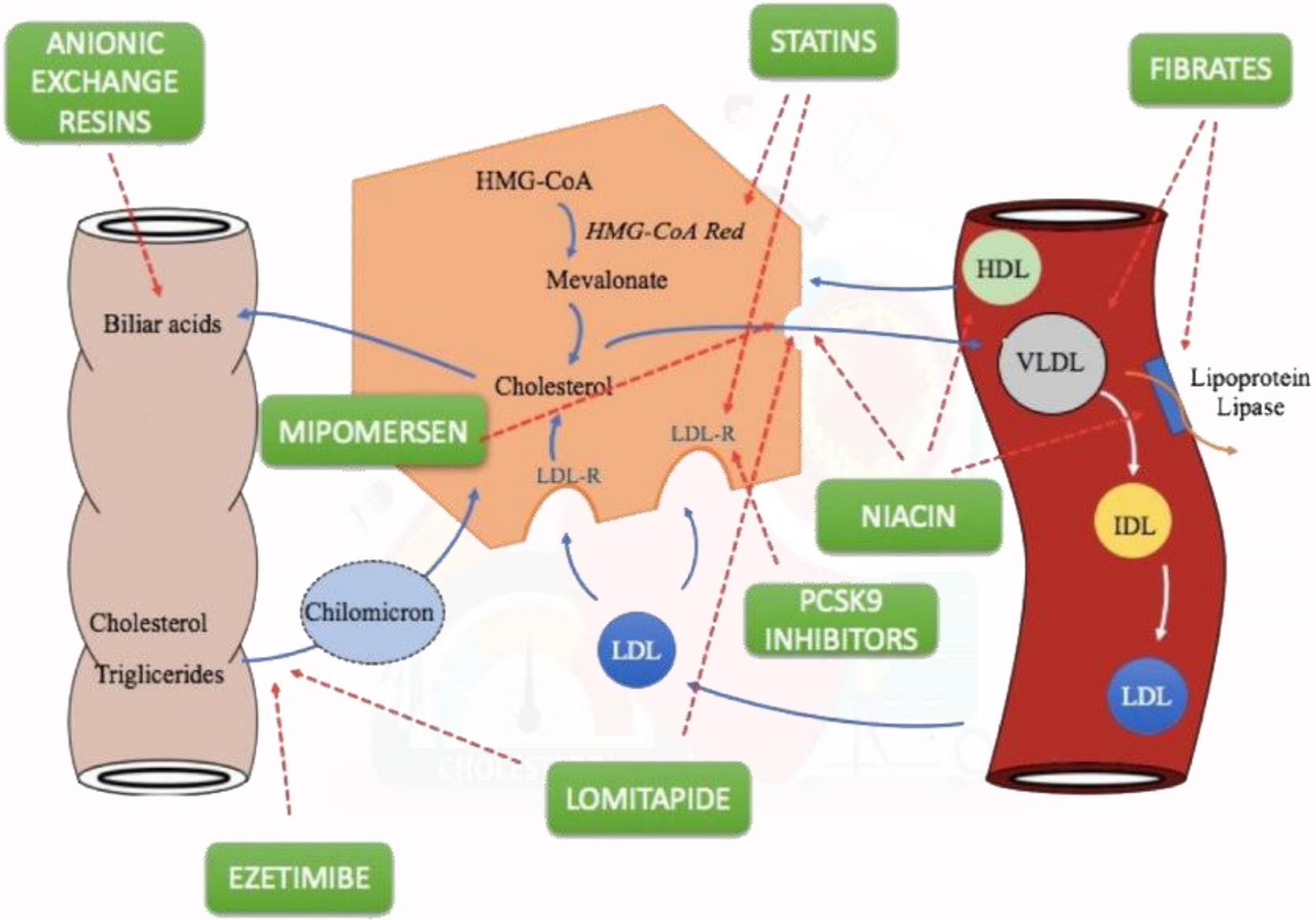


3. Pharmacological Management of Dyslipidemia

Pharmacological Management of Dyslipidemia



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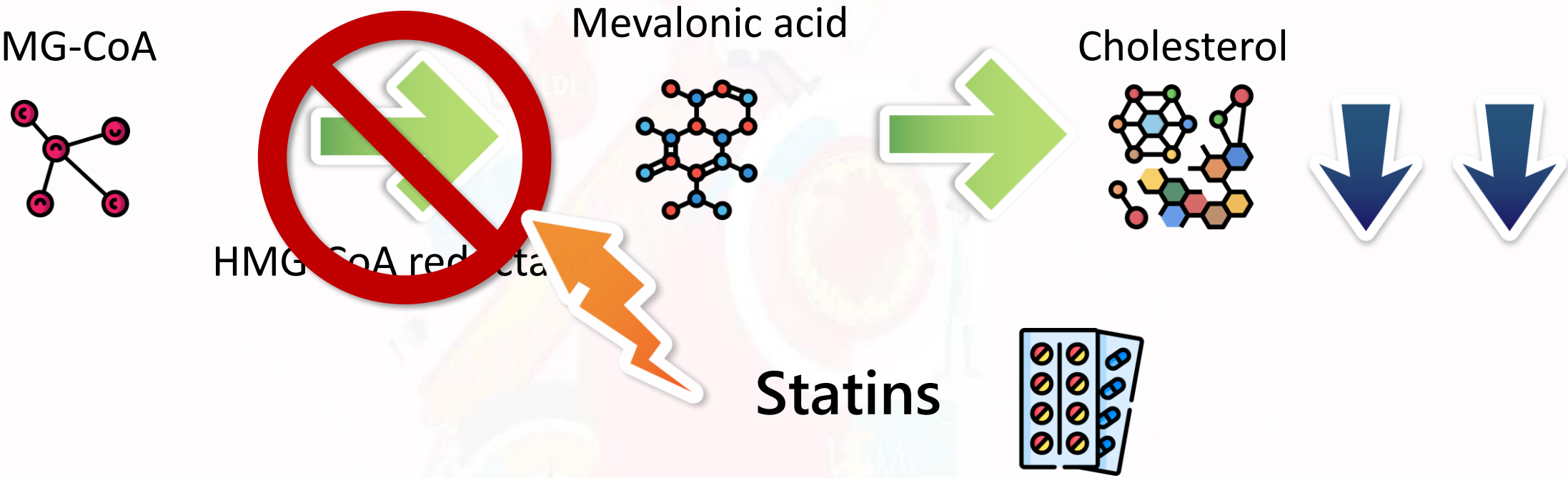
Statins(1)

Mechanism of action

A



B ↑ Receptor-mediated absorption of LDL, hence ↓ plasma LDL.

C ↓ VLDL and IDL, which are LDL precursors → ↓ plasma LDL-C

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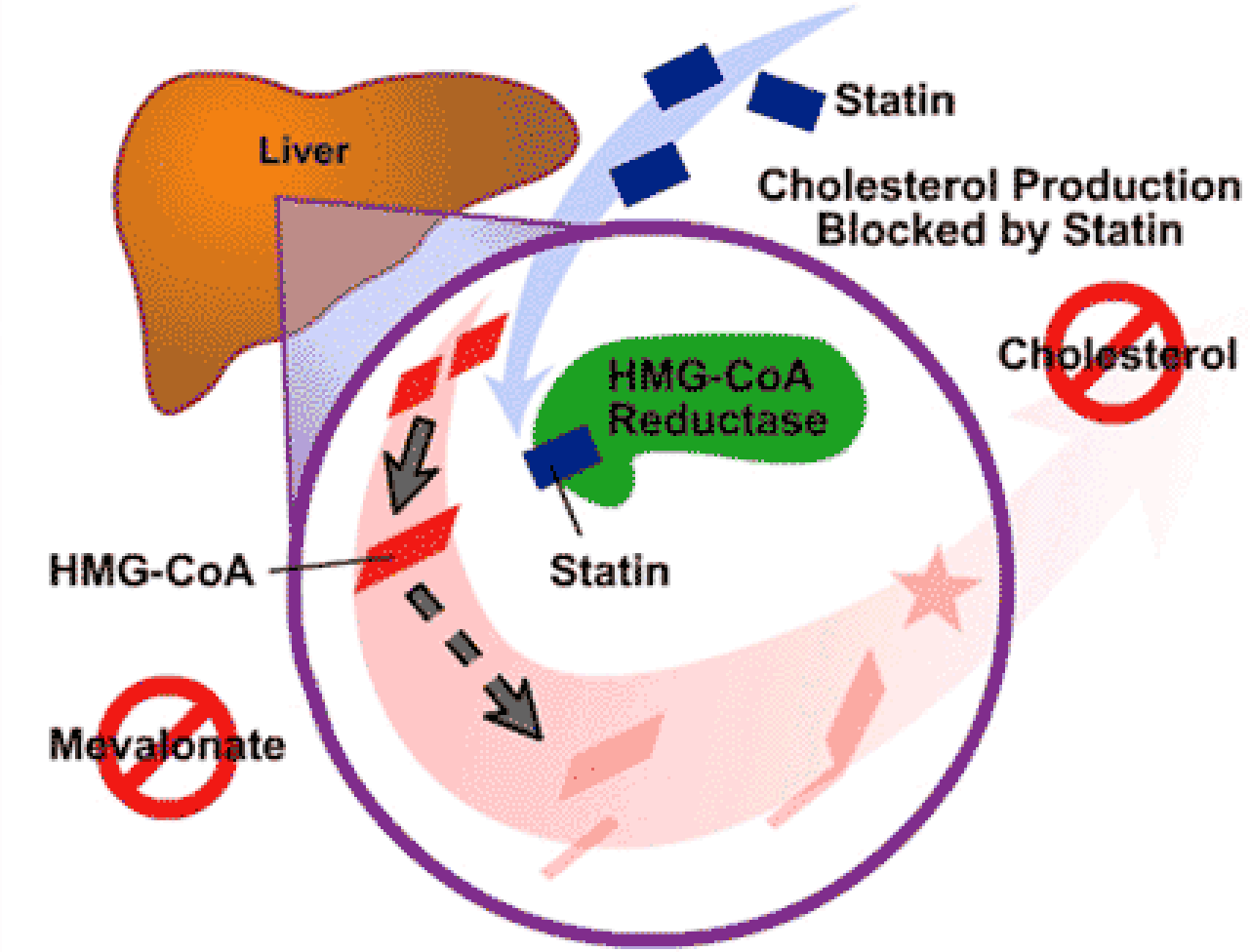
Statins(1)

Mechanism of action



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Statins[1]

All statins possess very low systemic bioavailability due to an extensive first-pass effect.

Statins differ mainly in the degree of metabolism and the number of active and inactive metabolites.

All statins have active metabolites so that their activity depends also on the profile of both parent compound and active metabolites.

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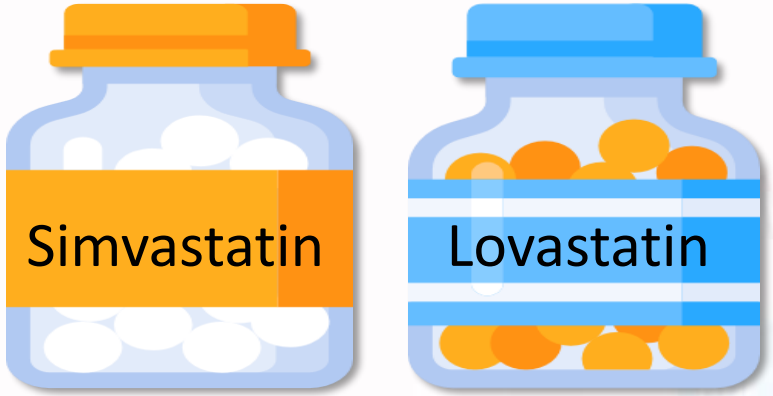
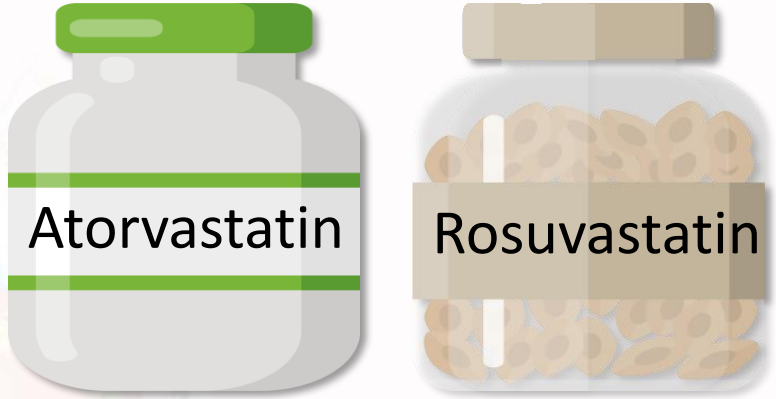
Statins[1]





Unlike most statins, are administered as inactive lactone **prodrugs**.

Possess the longest terminal half-life (**11–20 h**).

Has the lowest protein-binding (around **50%**) when compared to other statins (**>90%**); furthermore, statins have a low half-life (**1-4 h**)

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Statins(1)

In Homozygous Familial Hypercholesterolemic

Do not lower LDL levels

Are effective

probably due to their ability to produce a significant decrease in liver production of LDL cholesterol.

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Statins

Dose*

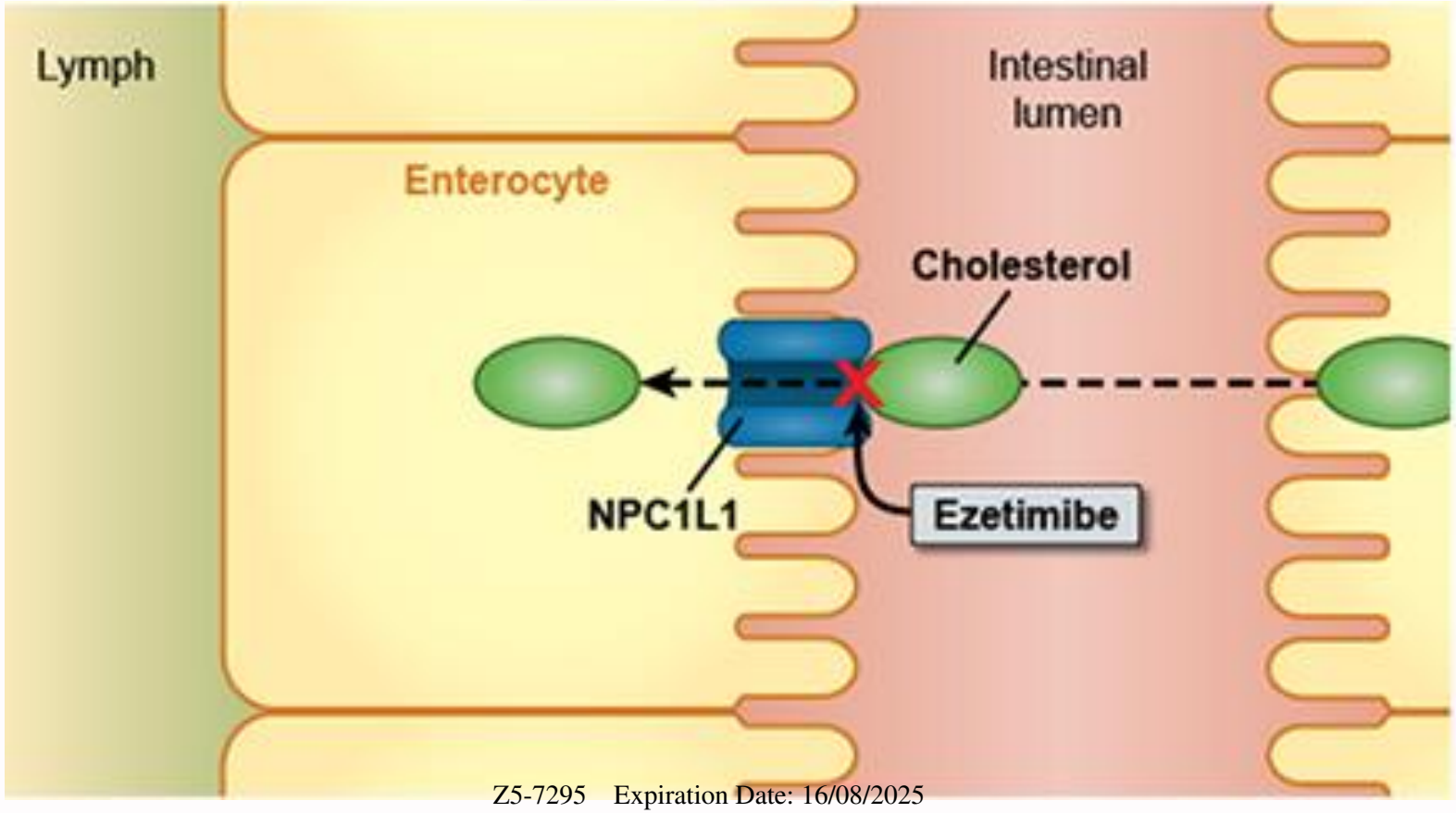
High-Intensity Statin Therapy	Moderate-Intensity Statin Therapy	Low-Intensity Statin Therapy
Daily dose lowers LDL on average by ≥50%	Daily dose lowers LDL on average by approximately 30-49%	Daily dose lowers LDL on average by <30%
Atorvastatin 40-80 mg Rosuvastatin 20-40 mg	Atorvastatin 10-20 mg Rosuvastatin 5-10 mg Simvastatin 20-40 mg Pravastatin 40-80 mg Lovastatin 40 mg Fluvastatin XL 80 mg Fluvastatin 40 mg BID Pitavastatin 2-4 mg	Simvastatin 10 mg Pravastatin 10-20 mg Lovastatin 20 mg Fluvastatin 20-40 mg

*Grundy SM, Stone NJ, Bailey AL, et al. 2018 AHA/ACC/AACVPR/AAPA/ACPM/ADA/AGS/APhA/ASPC/NLA/PCNA guideline on the management of blood cholesterol: a report of the American College of Cardiology/American Heart Association Task Force on clinical practice guidelines. J Am. Coll Cardiol, Nov 2018, 25709; doi: 10.1016/j.jacc.2018.11.003.

Cholesterol absorption inhibitors[1]

Mechanism of action

✓Ezetimibe interact with NPC1L1



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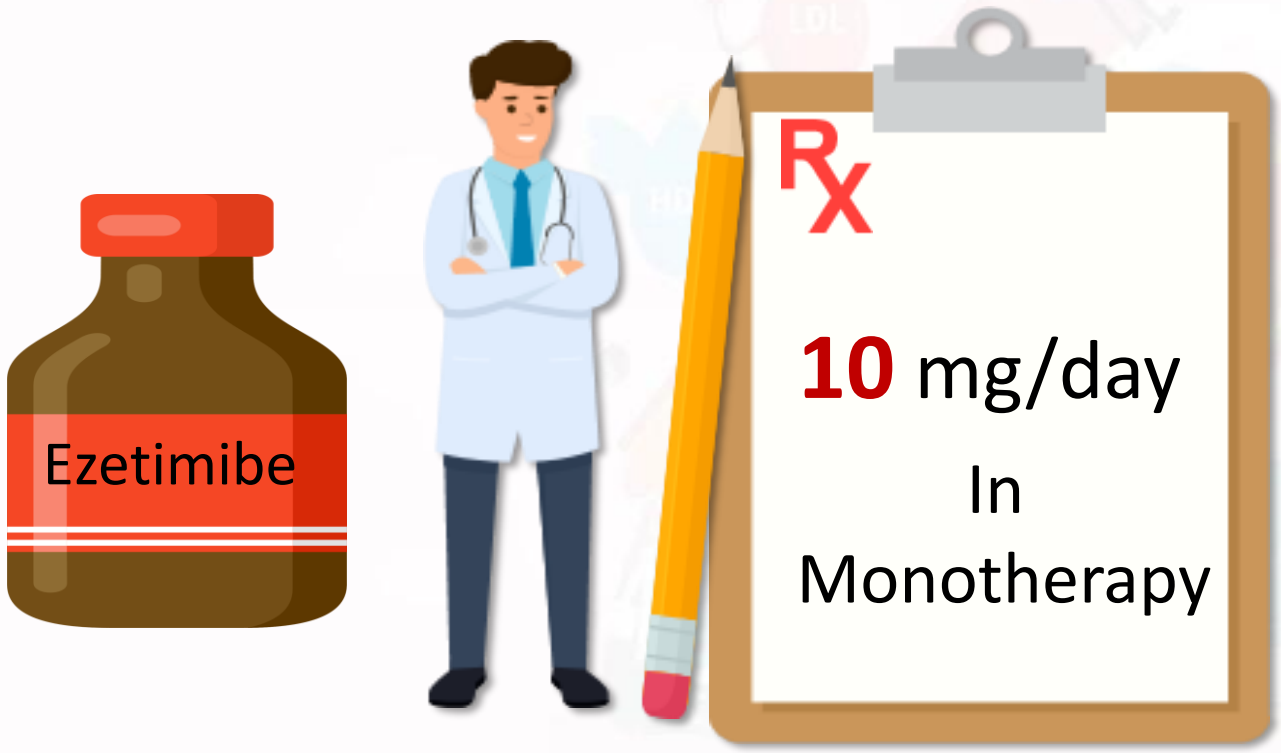
Cholesterol absorption inhibitors[1]

Dose and Effects on lipids



This dose reduces LDL-C in hypercholesterolaemic patients by **15-22%** with relatively high interindividual variation.

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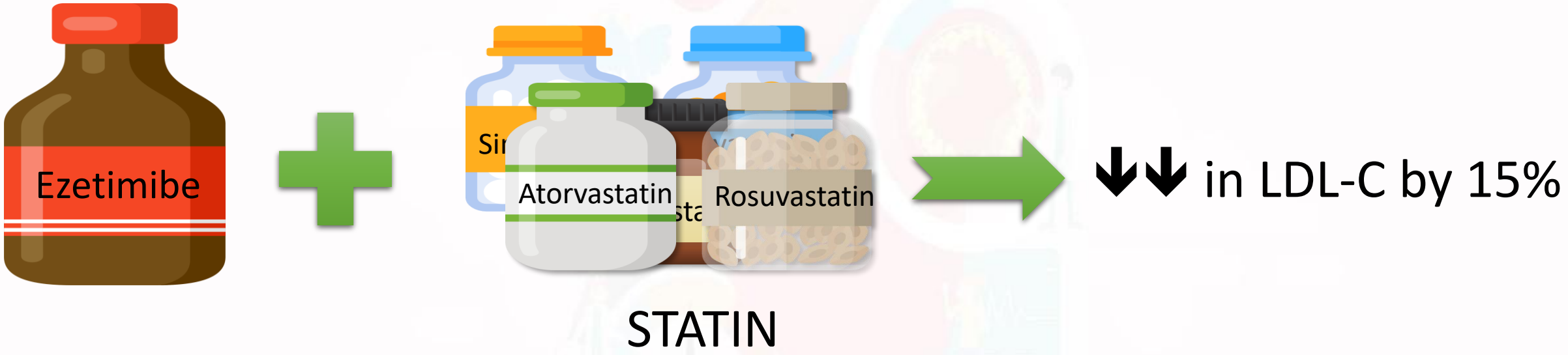
Dose and Effects on lipids



Compared with the same statins and doses in monotherapy or doubling of the statin dose

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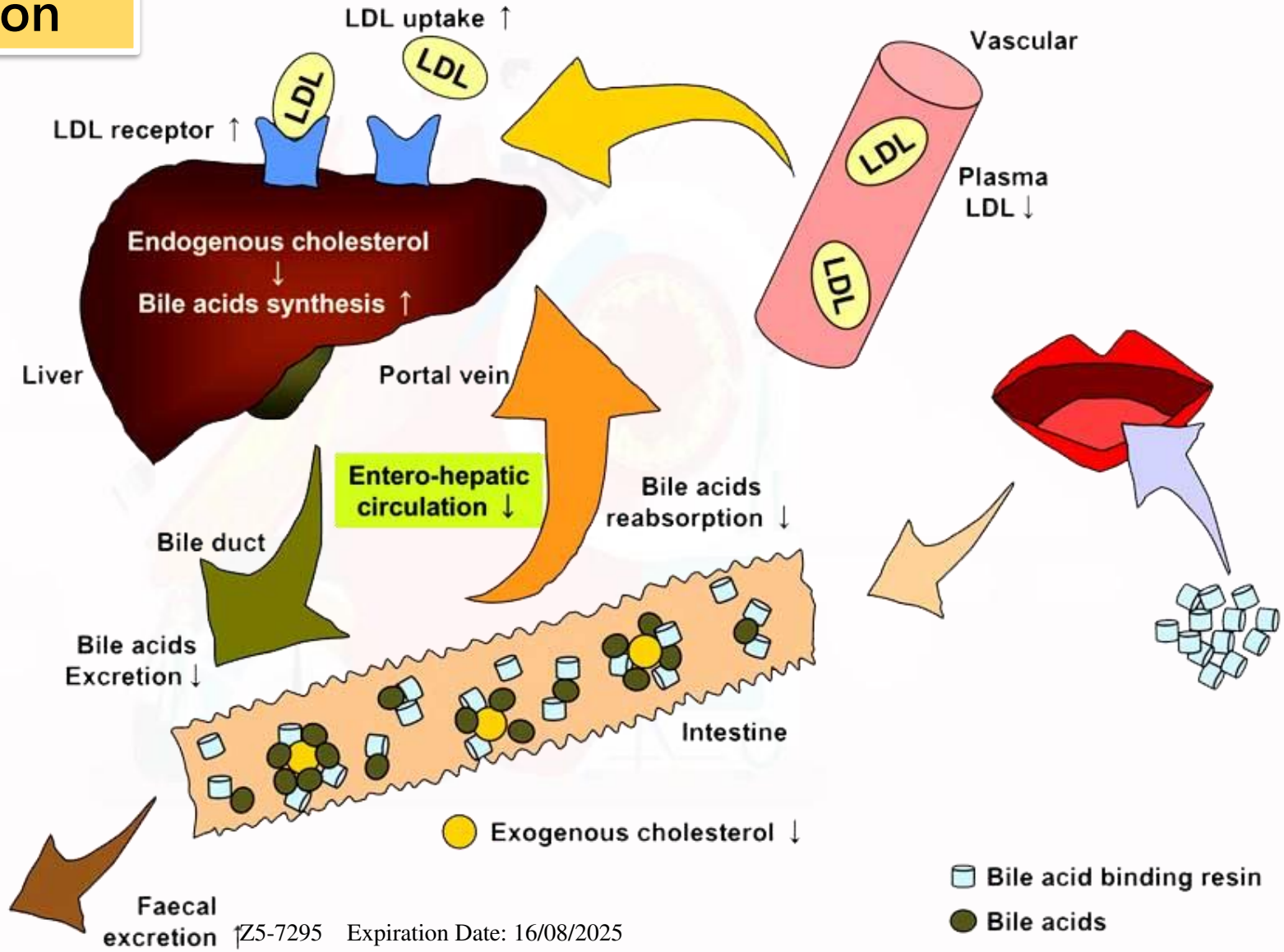
Bile acid sequestrants(1)

Mechanism of action



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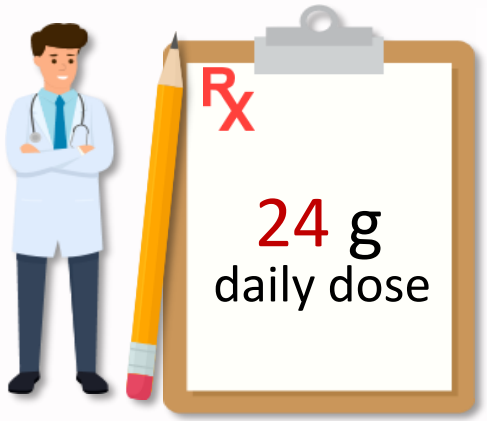
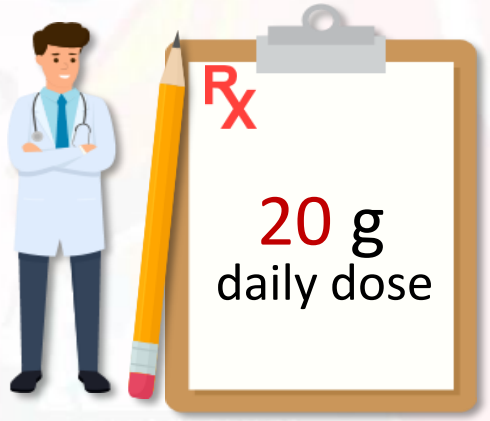
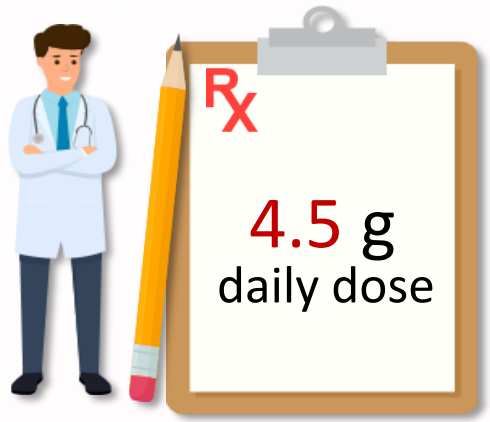
Bile acid sequestrants(1)

Dose and Effects on lipids







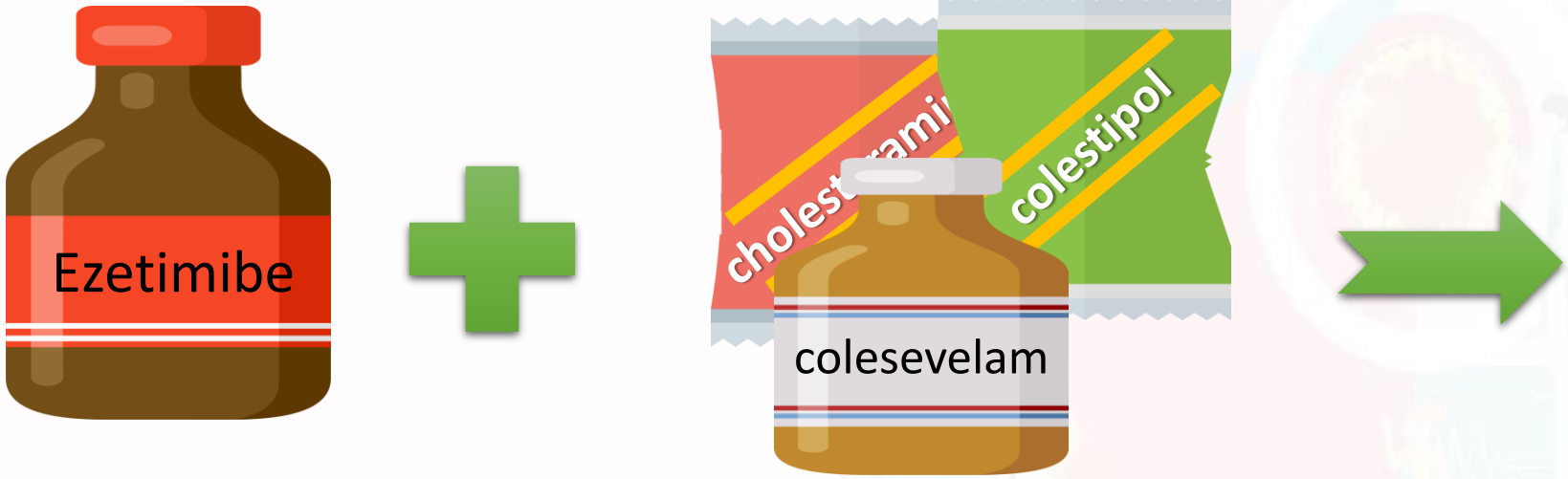
A reduction in LDL-C of 18-25% has been observed. No major effect on HDL-C has been reported, while TGs may increase in some predisposed patients.

23-7295 Expiration Date: 16/08/2025

1. Zodda, D., Giammona, R., & Schifilliti, S. (2018). Treatment Strategy for Dyslipidemia in Cardiovascular Disease Prevention: Focus on Old and New Drugs. Pharmacy (Basel, Switzerland), 6(1), 10. https://doi.org/10.3390/pharmacy6010010.

Bile acid sequestrants[1]

Dose and Effects on lipids



Bile acid sequestrants

↓↓ LDL-C levels by 10-20%

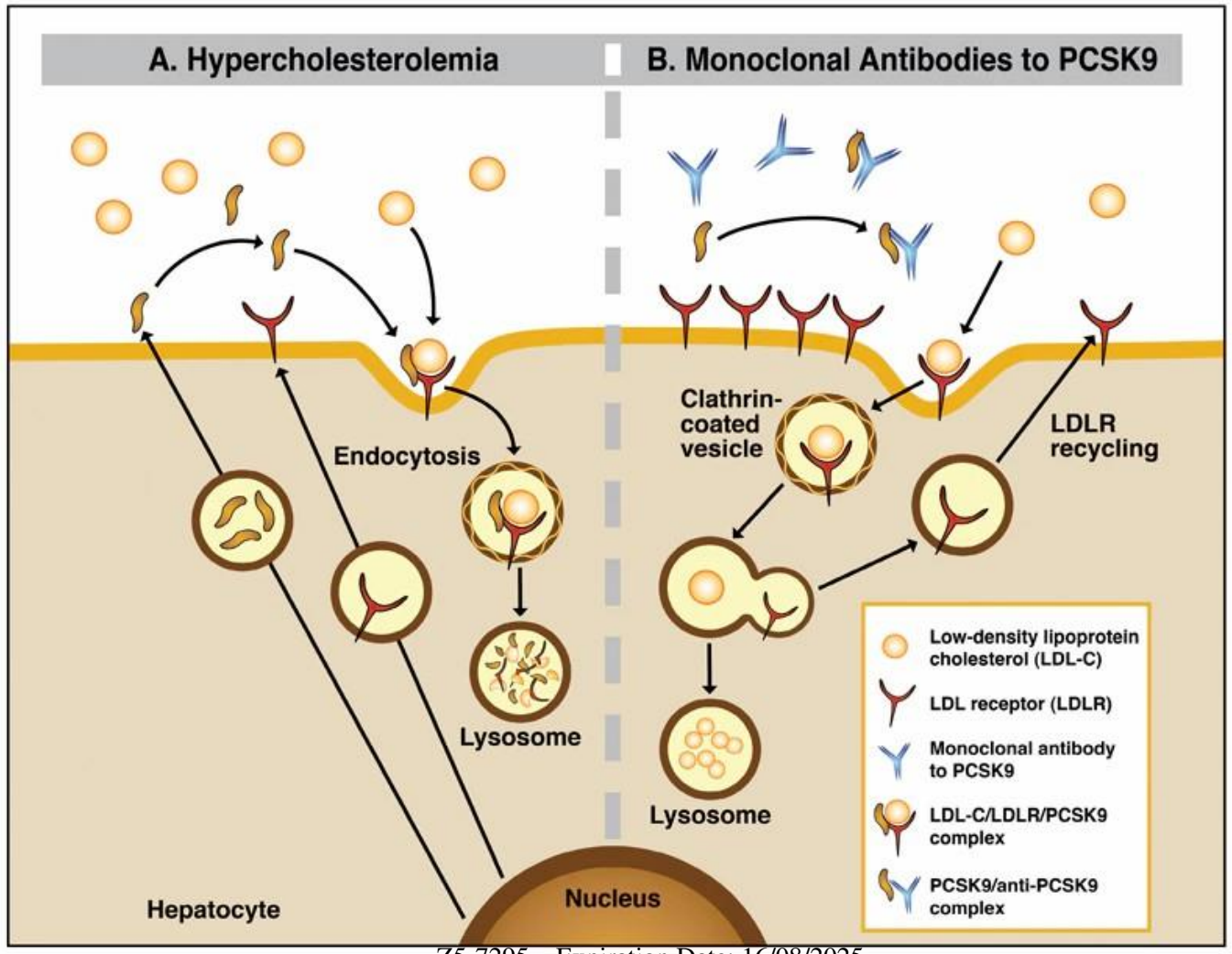
Compared with the stable bile acid sequestrant regimen alone

Z5-7295 Expiration Date: 16/08/2025

1. Zodda, D., Giammona, R., & Schifilliti, S. (2018). Treatment Strategy for Dyslipidemia in Cardiovascular Disease Prevention: Focus on Old and New Drugs. Pharmacy (Basel, Switzerland), 6(1), 10. https://doi.org/10.3390/pharmacy6010010.

Proprotein convertase subtilisin/kexin type 9 inhibitors(1)

Mechanism of action



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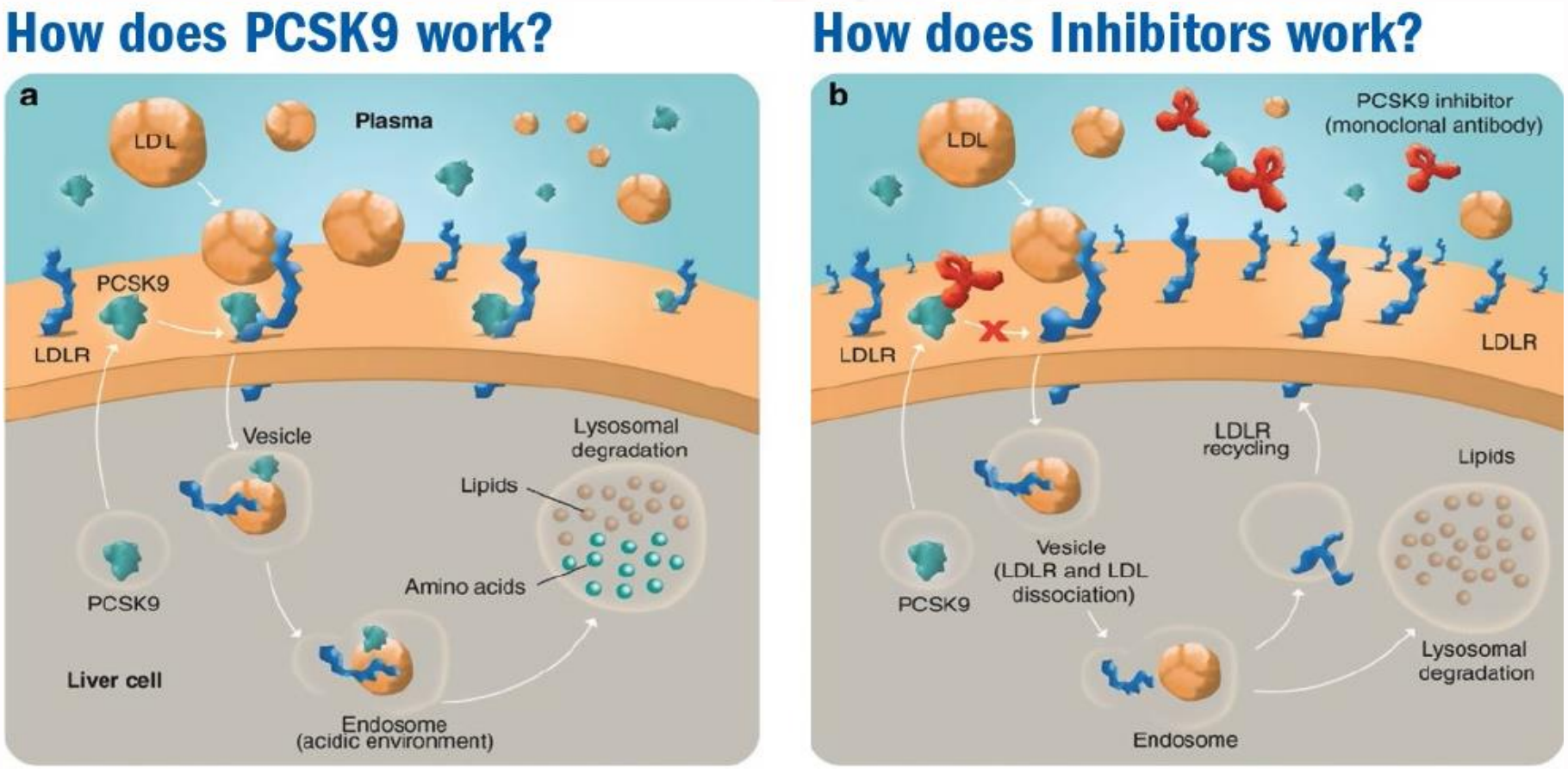
Proprotein convertase subtilisin/kexin type 9 inhibitors(1)

Mechanism of action



a) Secreted PCSK9 binds to LDLR on the liver cell surface and mediates the lysosomal degradation of the complex formed by PCSK9 - LDLR - LDL.

b) In the presence of a monoclonal antibody that binds to PCSK9, the PCSK9-mediated degradation of LDLR is inhibited, resulting in an increased uptake of LDL-cholesterol by LDLR as more LDLR are recycled at the cell surface.

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Proprotein convertase subtilisin/kexin type 9 inhibitors(1)

Effects on LDL

Evolocumab

Alirocumab

⬇⬇ LDL-C levels on average by 60%, depending on dose.

Effective in patients with HeFH and, albeit to a lower level, those with HoFH with residual LDLR expression. Receptor deficient HoFH responds poorly to the therapy.

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Proprotein convertase subtilisin/kexin type 9 inhibitors(1)

Effects on TG and HDL

Evolocumab

Alirocumab

↓↓ TG levels by 26%

↑↑ HDL levels by 9%

↑↑ ApoA-I levels by 4%

Effects on Lipoprotein(a)

Evolocumab

Alirocumab

↓↓ Lp(a) levels by 30-40%.

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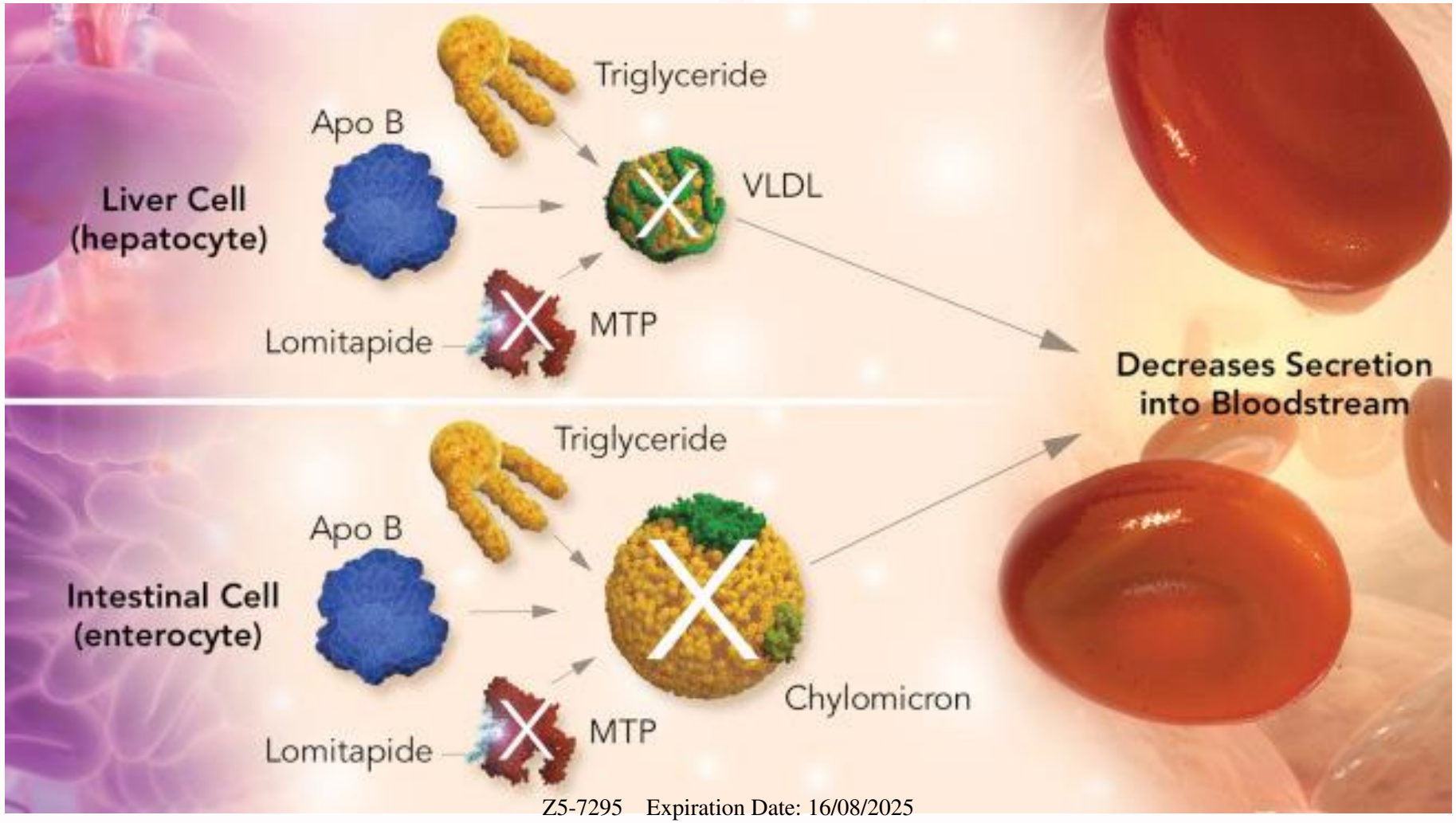
Lomitapide[1]

Mechanism of action



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Lomitapide[1]

Effects on LDL

⬇⬇ LDL-C by 50% from baseline at 26 weeks and by 44% at 56 weeks

Lomitapide ⬆⬆ ALT levels ➔⬆ fat in the liver, as well as poor GI tolerability. preventing a further increase in the dose of lomitapide in clinical trials.

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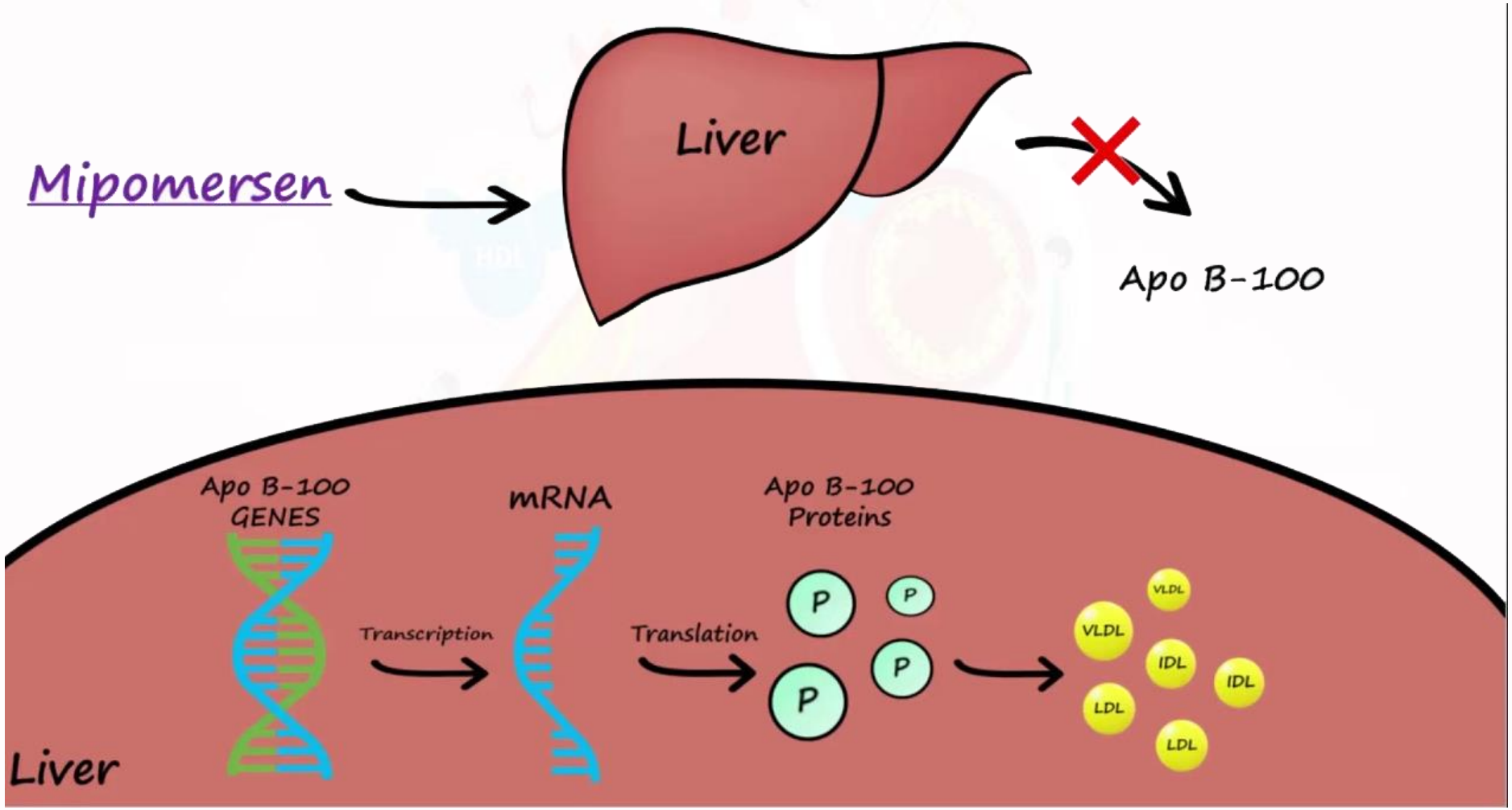
1. Zodda, D., Giammona, R., & Schifilliti, S. (2018). Treatment Strategy for Dyslipidemia in Cardiovascular Disease Prevention: Focus on Old and New Drugs. Pharmacy (Basel, Switzerland), 6(1), 10. https://doi.org/10.3390/pharmacy6010010.

Mipomersen(1)

Mechanism of action



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Mipomersen[1]

Effects on LDL

Mipomersen

↓↓ LDL-C in patients with Homozygous Familial Hypercholesterolemia

- Reactions at the injection site are the most common adverse effects
- Mipomersen may cause liver ➔ development of steatosis.

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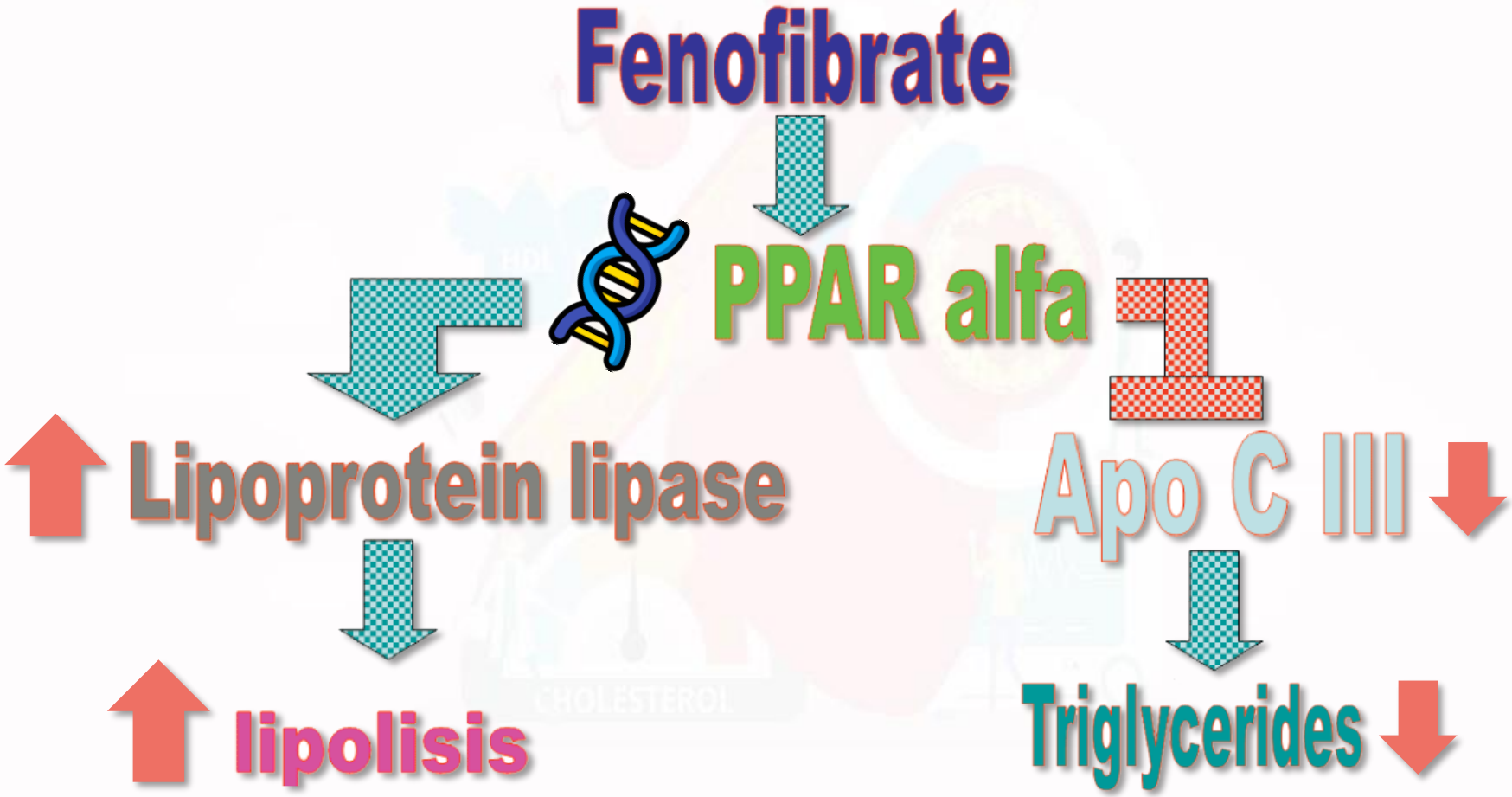
Fibrates(1)

Mechanism of action



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Fibrates[1]

Effects on lipids

Fibrate class

↓↓ TG level by 50%

↓↓ LDL-C level by 20%

↑↑ HDL-C level by 20%

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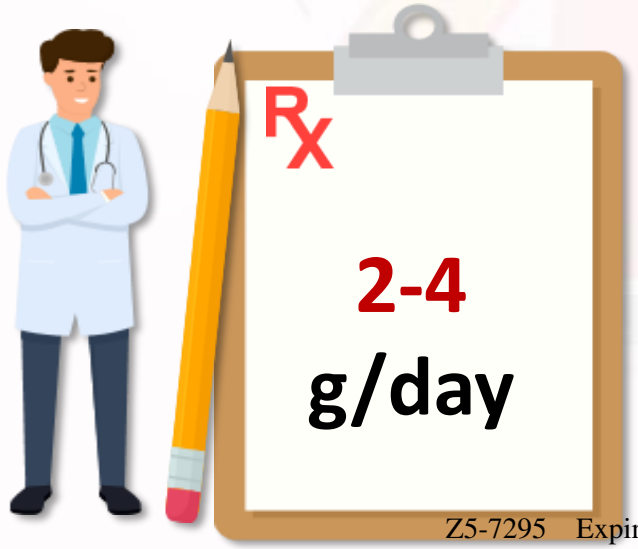
N-3 fatty acids[1]

Mechanism of action

The underlying mechanism is poorly understood, although it may be related, at least in part, to their ability to interact with PPARs and to decreased secretion of ApoB.

Effects on lipids

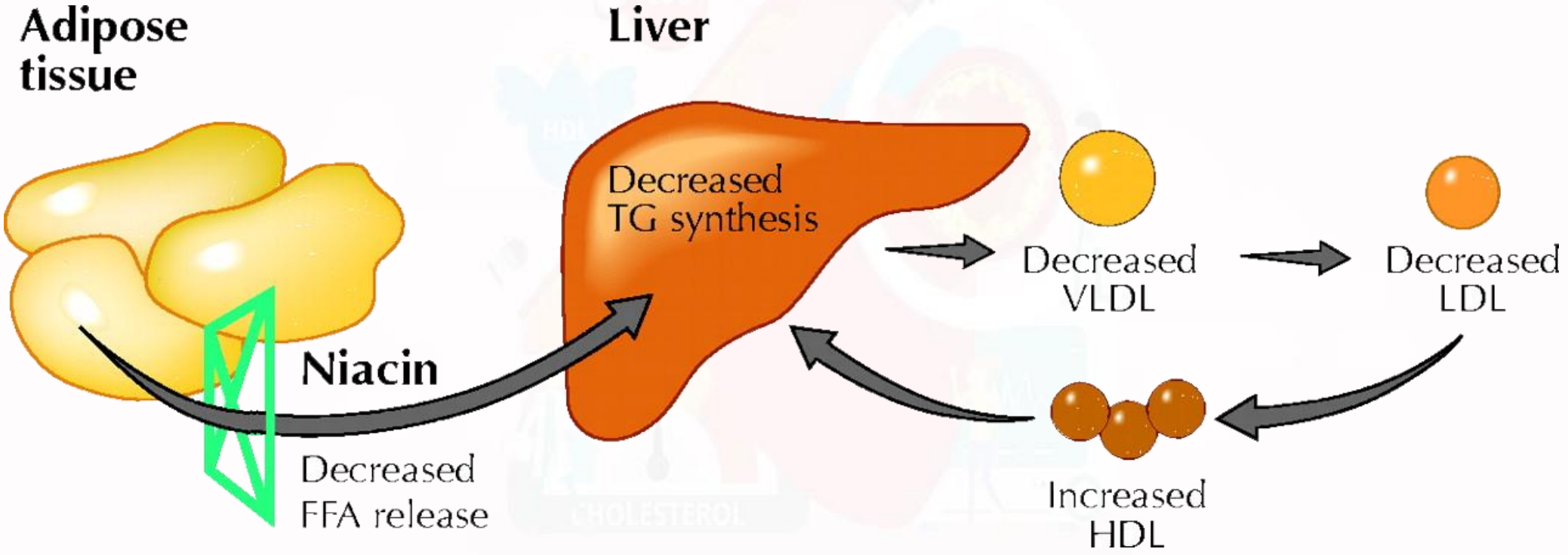


⬇⬇ TG levels of up to 45%

1. Zodda, D., Giammona, R., & Schifilliti, S. (2018). Treatment Strategy for Dyslipidemia in Cardiovascular Disease Prevention: Focus on Old and New Drugs. Pharmacy (Basel, Switzerland), 6(1), 10. https://doi.org/10.3390/pharmacy6010010.

Nicotinic acid(1)

Mechanism of action



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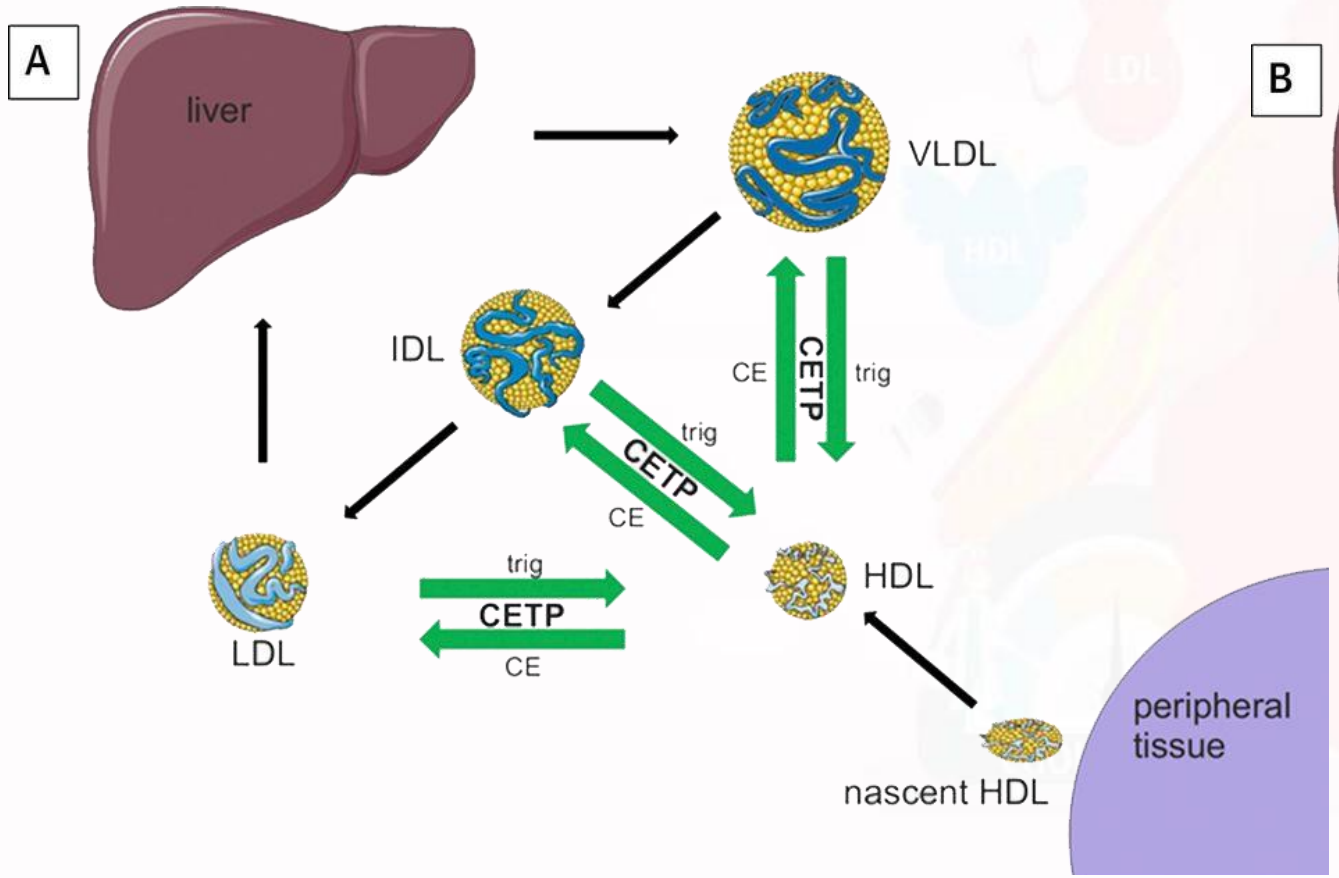
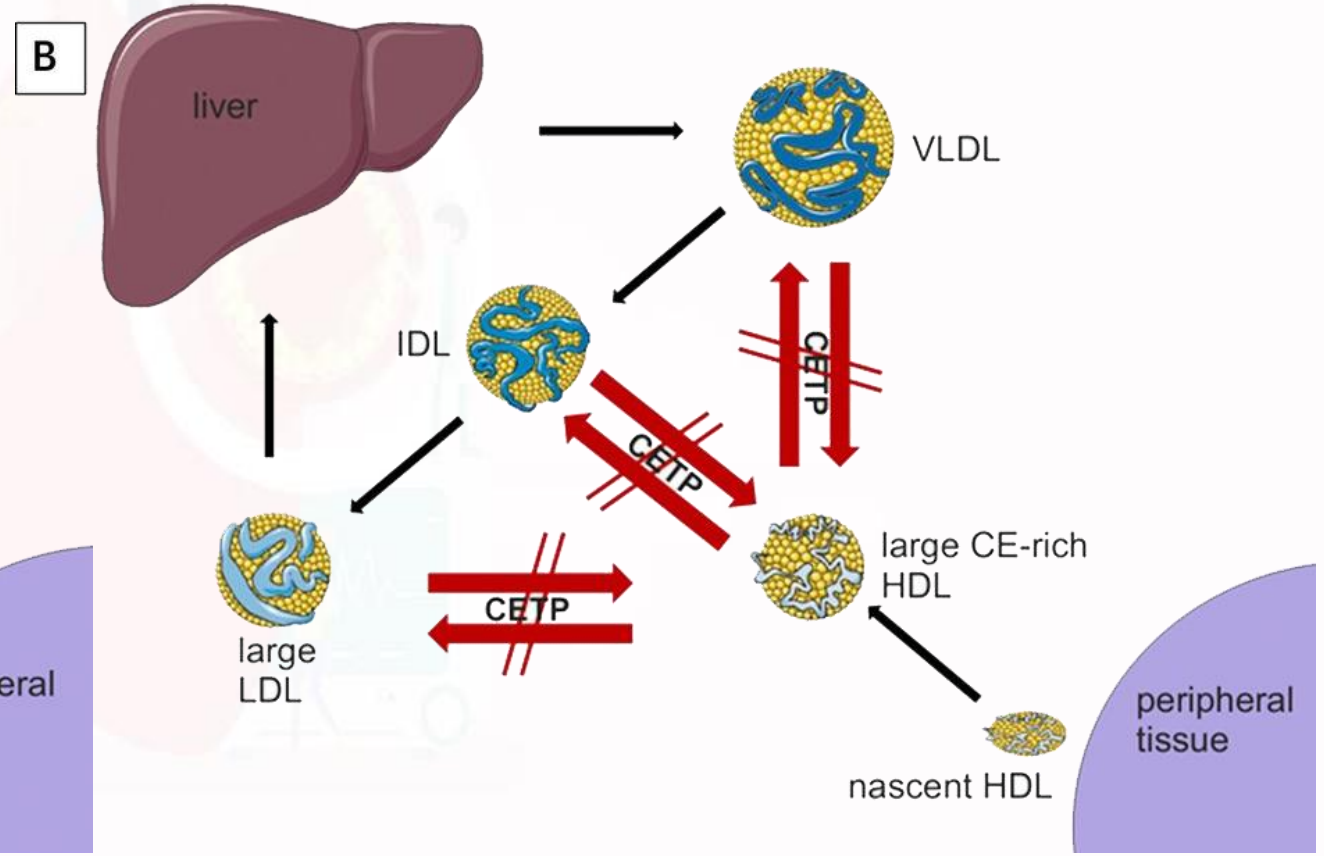
Cholesteryl ester transfer protein inhibitors(1)

Mechanism of action





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Cholesteryl ester transfer protein inhibitors[1]

01 **Torcetrapib** was studied to Understand its Impact in Atherosclerotic Events (ILLUMINATE) trial, which was stopped early due to increased mortality

02 **Dalcetrapib** ↑ HDL-C levels by 30-40% with no appreciable effect on LDL. it failed to show any benefit in ACS patients in the dal-OUTCOMES trial.

03 **Evacetrapib** ↑ HDL-C levels by 130% and ↓ LDL-C by 37%, was studied in the ACCELERATE trial, which was terminated due to futility.

04 **Anacetrapib** ↑ HDL(104 %) & ApoA-I (36%), ↓ LDL (17%) & ApoB (18%) was studied in the REVEAL trial. it ↓ major coronary events by 9% over a median of 4.1 years. This drug has not been submitted for regulatory approval.

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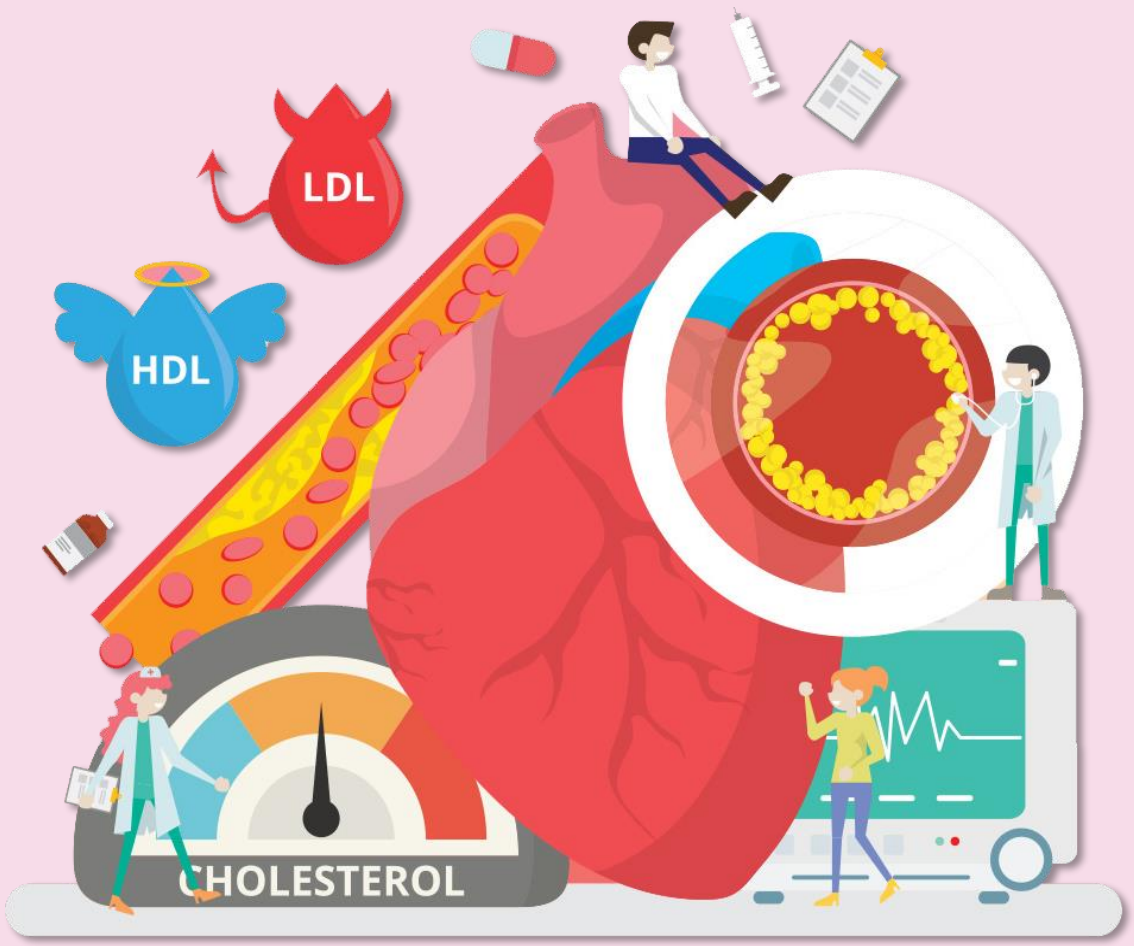
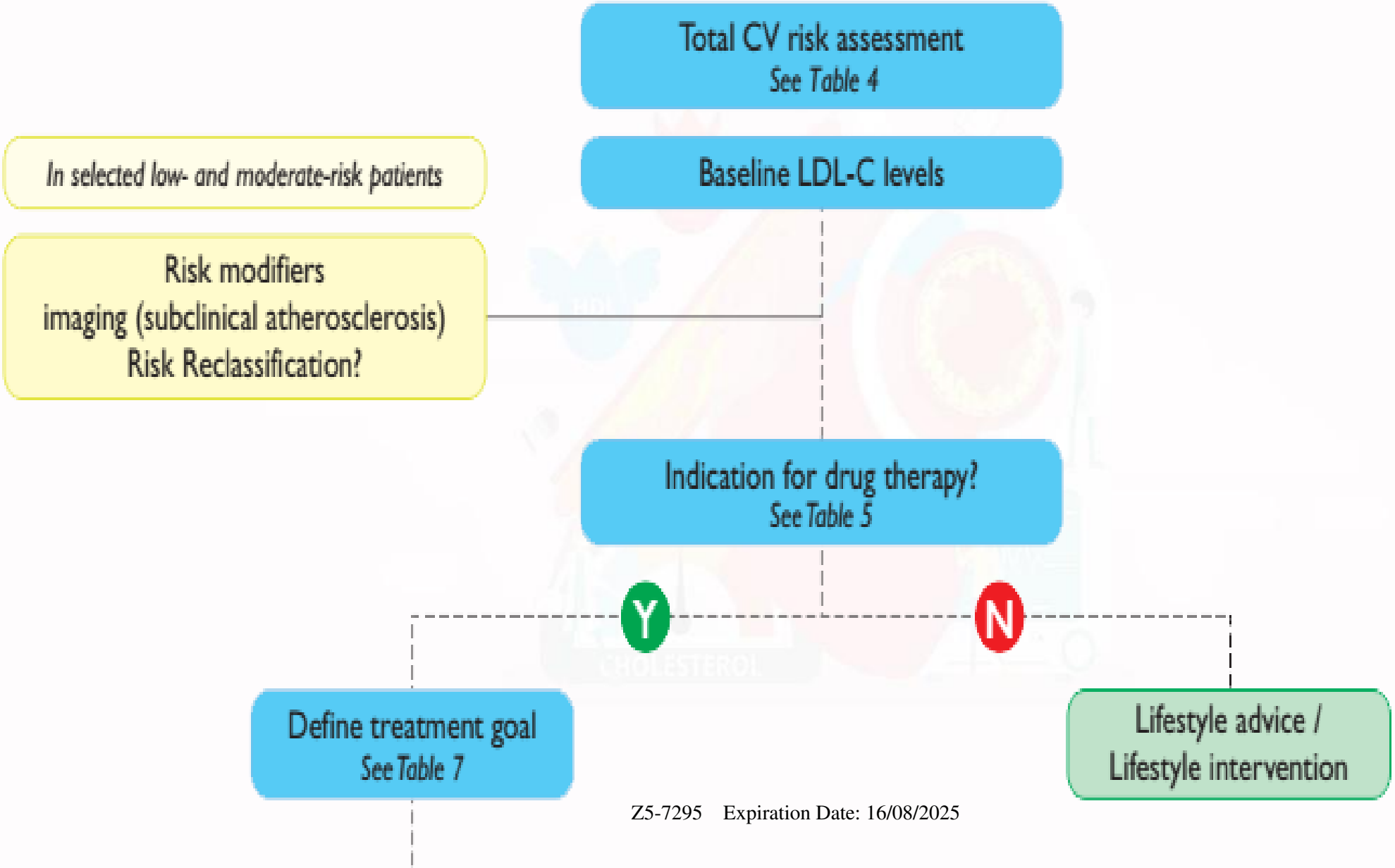
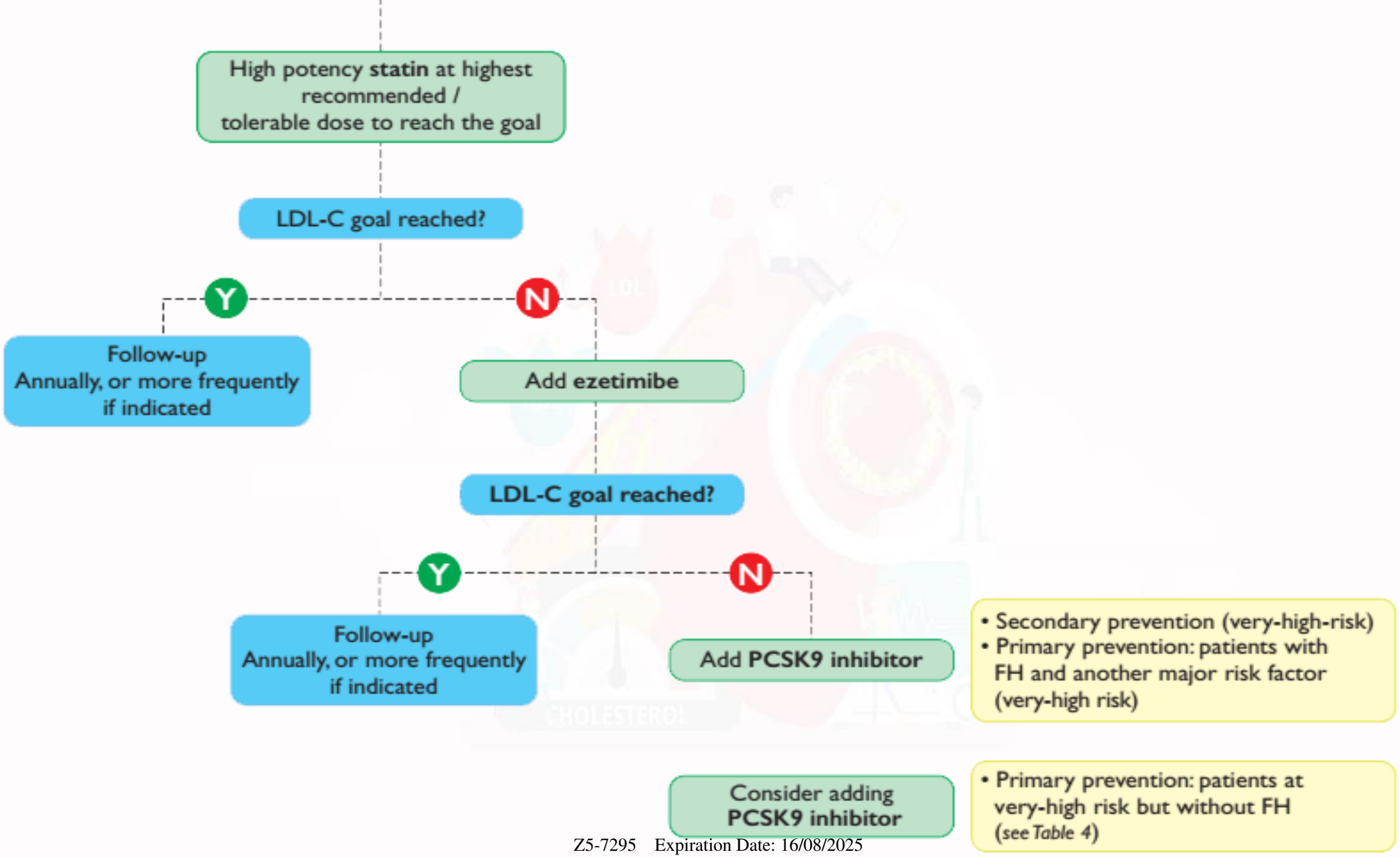
1. Zodda, D., Giammona, R., & Schifilliti, S. (2018). Treatment Strategy for Dyslipidemia in Cardiovascular Disease Prevention: Focus on Old and New Drugs. Pharmacy (Basel, Switzerland), 6(1), 10. https://doi.org/10.3390/pharmacy6010010.



4. Treatment algorithm for pharmacological LDL lowering.

Treatment algorithm for pharmacological LDL lowering[2]





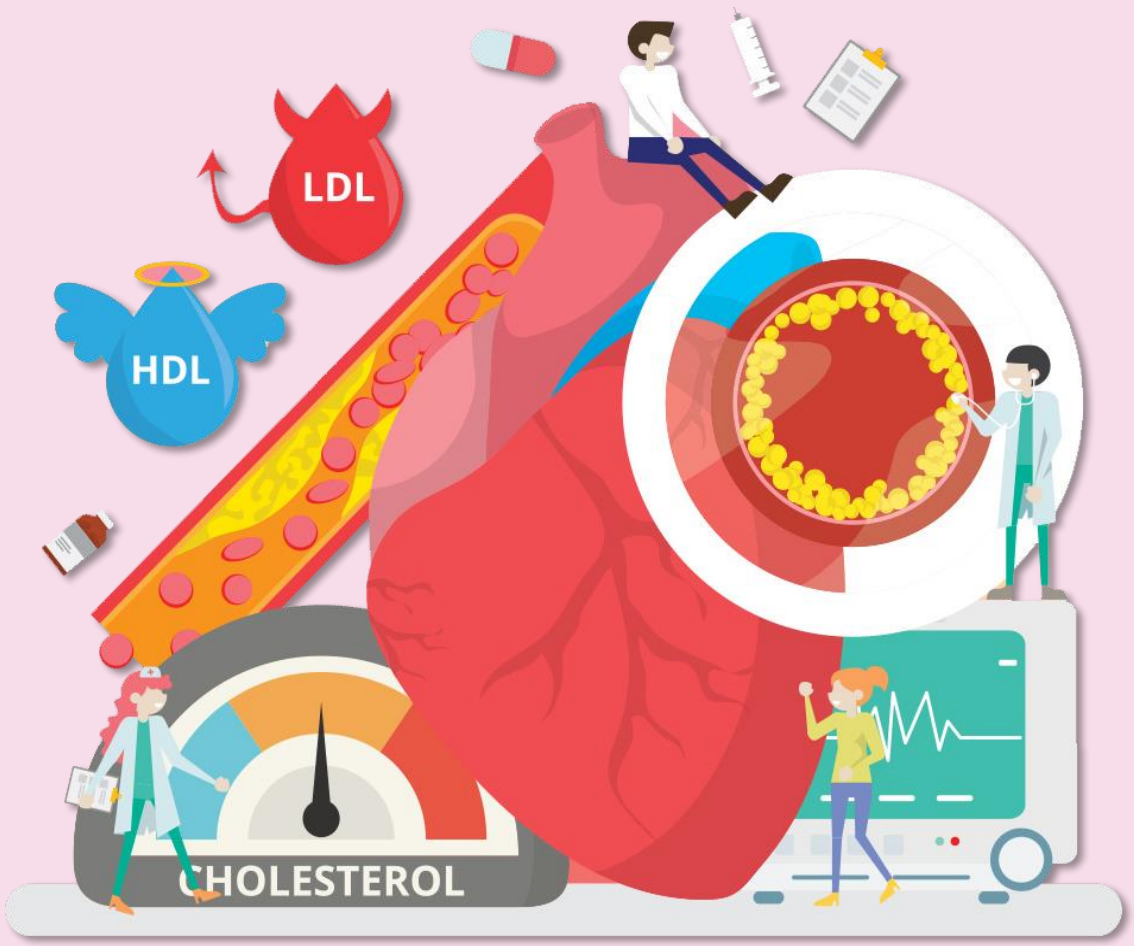
2.Mach F, Baigent C, Catapano AL, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. Eur Heart J. 2020;41(1):111–188. doi: 10.1093/ eurheartj/ehz455.

Very-high-risk	people with any of the following. Documented ASCVD. either clinical or unequivocal on imaging. Documented ASCVD includes previous ACS (Ml or unstable angina), stable angina, coronary revascularization (PCI. CABG. and other arterial revascularization procedures), stroke and TIA and peripheral arterial disease. Unequivocally documented ASCVD on imaging includes those findings that are known to be predictive of clinical events, such as significant plaque on coronary angiography or CT scan (multivessel coronary disease with two major epicardial arteries having >50% stenosis), or on carotid ultrasound. DM with target organ damage* or at least three major risk factors, or early onset of T1 DM of long duration (>20 years). Severe CKD (eGFR <30 ml_/min/1.73 m2). A calculated SCORE >10% for 10-year risk of fatal CVD. FH with ASCVD or with another major risk factor.
High-risk	People with: Markedly elevated single risk factors, in particular TC >8 mmol/L (>310 mg/dL). LDL-C >4.9 mmol/L (>190 mg/dL). or BP >180/110 mmHg. Patients with FH without other major risk factors. Patients with DM without target organ damage.* with DM duration >10 years or another additional risk factor. Moderate CKD (eGFR 30—59 mL/min/1.73 m^2). A calculated SCORE >5% and <10% for 10-year risk of fatal CVD.
Moderate -risk	Young patients (T1DM <35 years: T2DM <50 years) with DM duration <10 years, without other risk factors. Calculated SCORE >1 % and <5% for 10-year risk of fatal CVD.
Low-risk	Calculated SCORE <1% for 10-year risk of fatal CVD.

	Total CV risk (SCORE) %	Untreated LDL-C levels					
		<1.4 mmol/L (55 mg/dL)	1.4 to <1.8 mmol/L (55 to <70 mg/dL)	1.8 to <2.6 mmol/L (70 to <100 mg/dL)	2.6 to <3.0 mmol/L (100 to <116 mg/dL)	3.0 to <4.9 mmol/L (116 to <190 mg/dL)	≥4.9 mmol/L (≥190 mg/dL)
Primary prevention	**<1, low-risk**	**Lifestyle advice**	**Lifestyle advice**	**Lifestyle advice**	**Lifestyle advice**	**Lifestyle intervention, consider adding drug if uncontrolled**	**Lifestyle intervention and concomitant drug intervention**
	Class[a]/Level[b]	I/C	I/C	I/C	I/C	IIa/A	IIa/A
	≥1 to <5, or moderate risk (see *Table 4*)	**Lifestyle advice**	**Lifestyle advice**	**Lifestyle advice**	**Lifestyle intervention, consider adding drug if uncontrolled**	**Lifestyle intervention, consider adding drug if uncontrolled**	**Lifestyle intervention and concomitant drug intervention**
	Class[a]/Level[b]	I/C	I/C	IIa/A	IIa/A	IIa/A	IIa/A
	≥5 to <10, or high-risk (see *Table 4*)	**Lifestyle advice**	**Lifestyle advice**	**Lifestyle intervention, consider adding drug if uncontrolled**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**
	Class[a]/Level[b]	IIa/A	IIa/A	IIa/A	I/A	I/A	I/A
	≥10, or at very-high risk due to a risk condition (see *Table 4*)	**Lifestyle advice**	**Lifestyle intervention, consider adding drug if uncontrolled**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**
	Class[a]/Level[b]	IIa/B	IIa/A	I/A	I/A	I/A	I/A
Secondary prevention	**Very-high-risk**	**Lifestyle intervention, consider adding drug if uncontrolled**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**	**Lifestyle intervention and concomitant drug intervention**
	Class[a]/Level[b]	IIa/A	I/A	I/A	I/A	I/A	I/A

Smoking	No exposure to tobacco in any form.
Diet	Healthy diet low in saturated fat with a focus on wholegrain products, vegetables, fruit, and fish.
Physical activity	3.5–7 h moderately vigorous physical activity per week or 30–60 min most days.
Body weight	BMI 20–25 kg/m^2, and waist circumference <94 cm (men) and <80 cm (women).
Blood pressure	<140/90 mmHg.[a]
LDL-C	**Very-high risk in primary or secondary prevention:** A therapeutic regimen that achieves ≥50% LDL-C reduction from baseline[b] and an LDL-C goal of <1.4 mmol/L (<55 mg/dL). No current statin use: this is likely to require high-intensity LDL-lowering therapy. Current LDL-lowering treatment: an increased treatment intensity is required. **High risk:** A therapeutic regimen that achieves ≥50% LDL-C reduction from baseline[b] and an LDL-C goal of <1.8 mmol/L (<70 mg/dL). **Moderate risk:** A goal of <2.6 mmol/L (<100 mg/dL). **Low risk:** A goal of <3.0 mmol/L (<116 mg/dL).
Non-HDL-C	Non-HDL-C secondary goals are <2.2, 2.6, and 3.4 mmol/L (<85, 100, and 130 mg/dL) for very-high-, high-, and moderate-risk people, respectively.
ApoB	ApoB secondary goals are <65, 80, and 100 mg/dL for very-high-, high-, and moderate-risk people, respectively.
Triglycerides	No goal, but <1.7 mmol/L (<150 mg/dL) indicates lower risk and higher levels indicate a need to look for other risk factors.
Diabetes	HbA1c: <7% (<53 mmol/mol).

2.Mach F, Baigent C, Catapano AL, et al. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: lipid modification to reduce cardiovascular risk. Eur Heart J. 2020;41(1):111–188. doi: 10.1093/ eurheartj/ehz455.



5. Recommendations for drug treatment of patients with hypertriglyceridemia

Recommendations for drug treatment of patients with hypertriglyceridemia[2]

Recommendations	Class	Level
Statin treatment is recommended as the first drug of choice to reduce CVD risk in high-risk individuals with hypertriglyceridaemia [TG levels >2.3 mmol/L (>200 mg/dL)].	I	B
In high-risk (or above) patients with TG levels between 1.55.6 mmol/L (135499 mg/dL) despite statin treatment, n-3 PUFAs (icosapent ethyl 22 g/day) should be considered in combination with a statin.	IIa	B
In primary prevention patients who are at LDL-C goal with TG levels >2.3 mmol/L (>200 mg/dL), fenofibrate or bezafibrate may be considered in combination with statins.	IIb	B
In high-risk patients who are at LDL-C goal with TG levels >2.3 mmol/L (>200 mg/dL), fenofibrate or bezafibrate may be considered in combination with statins.	IIb	C

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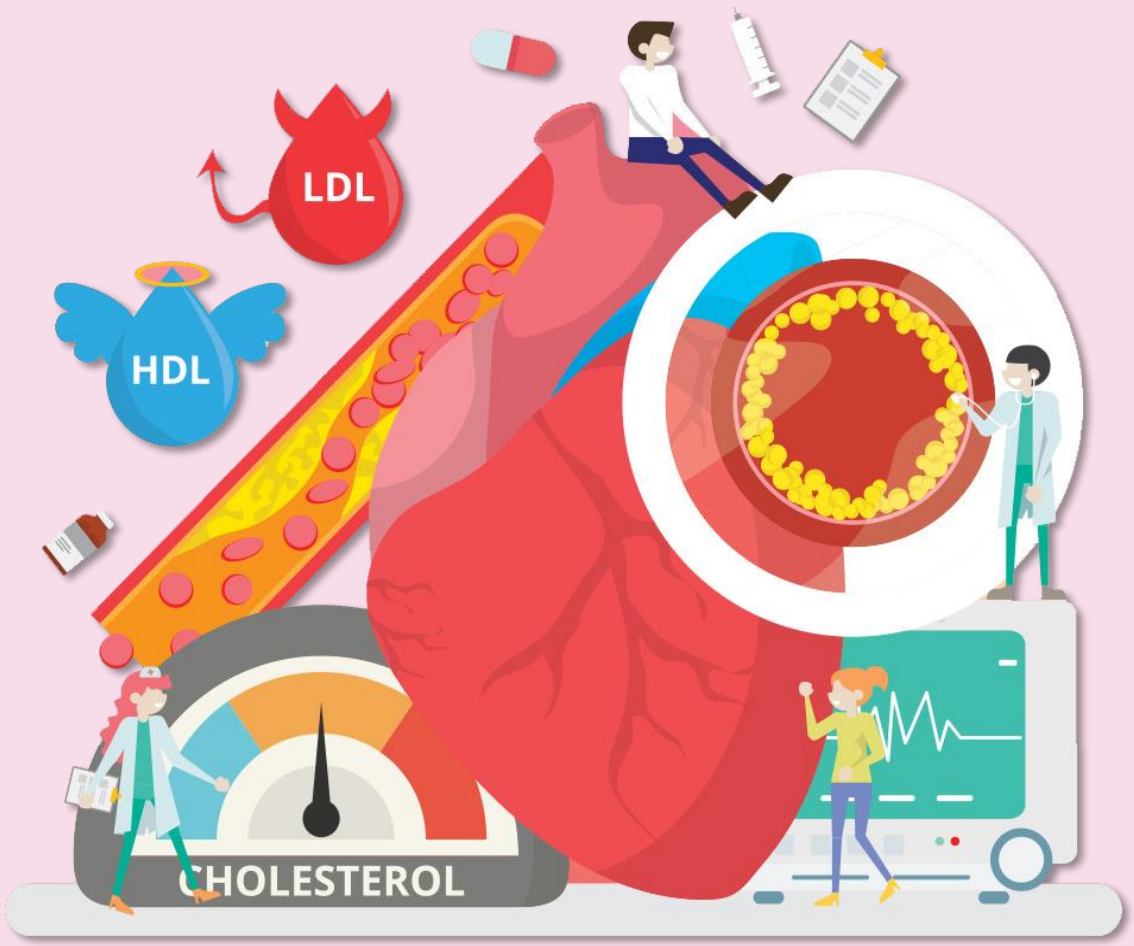

6. Recommendations for the treatment in older people (aged >65 years)

Recommendations for the treatment in older people (aged >65 years)[2]

Recommendations	Class	Level
Treatment with statins is recommended for older people with ASCVD in the same way as for younger patients.	I	A
Treatment with statins is recommended for primary prevention, according to the level of risk, in older people aged <_75 years.	I	A
Initiation of statin treatment for primary prevention in older people aged >75 years may be considered, if at high-risk or above.	IIb	B
It is recommended that the statin is started at a low dose if there is significant renal impairment and/or the potential for drug interactions, and then titrated upwards to achieve LDL-C treatment goals.	I	C

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Signatory Approval (Certificate)	Noha Mohamed Medical 16-Aug-2023 10:25:42 GMT+0000

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