DSAKU
Deutschsprachige Selbsthilfegruppe für Alkaptonurie

# Alkaptonuria – Status quo

## *What is known – A brief information for doctors & therapists*

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# What is alkaptonuria? (AKU)

- There are hundreds of inherited metabolic diseases. They are categorised according to their substrates

Disorders of the amino acid metabolism

Disorders of the carbohydrate metabolism

Disorders of the fatty acid metabolism

Disorders of purine and pyrimidine metabolism

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# What is alkaptonuria?(AKU)

- Disorders of the amino acid metabolism

Branched-chain amino acid disorders

Methionine metabolism disorders

Phenylketonuria

Tyrosine metabolism disorders

Disorders of the urea cycle

MSD MANUAL
Ausgabe für medizinische Fachkreise

# What is alkaptonuria?(AKU)

- Tyrosine metabolism disorder (Selection)

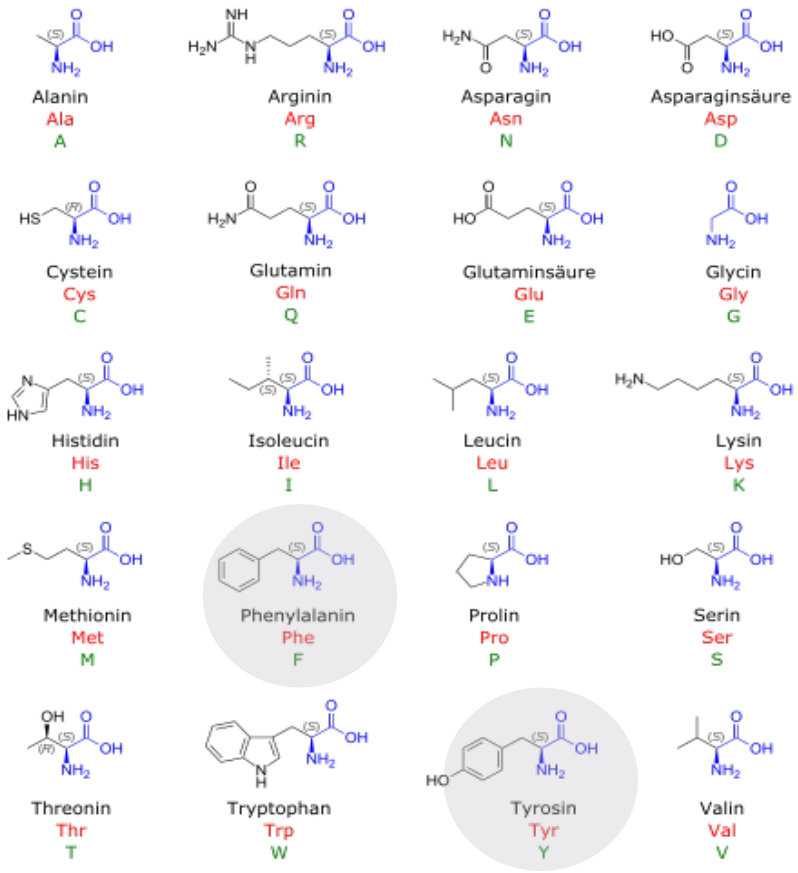
- Phenylketonuria (Phenylalanine hydroxylase)
- Hepatorenal tyrosinaemia type I (Fumaryl aceto acetate hydrolase)
- Oculocutaneous tyrosinaemia type II (Tyrosine aminotransferase)
- **Alkaptonuria** (Homogentisate oxidase)
- Oculocutaneous albinism type I (Tyrosinase)

Online Mendelian Inheritance in Man® (OMIM®) database.

# What is alkaptonuria?(AKU)

- Disruption of amino acid metabolism (phenylalanine, tyrosine)

# What is alkaptonuria?(AKU)



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- Disruption of amino acid metabolism (phenylalanine, tyrosine)
- Genetic deficiency of homogentisic acid oxidase

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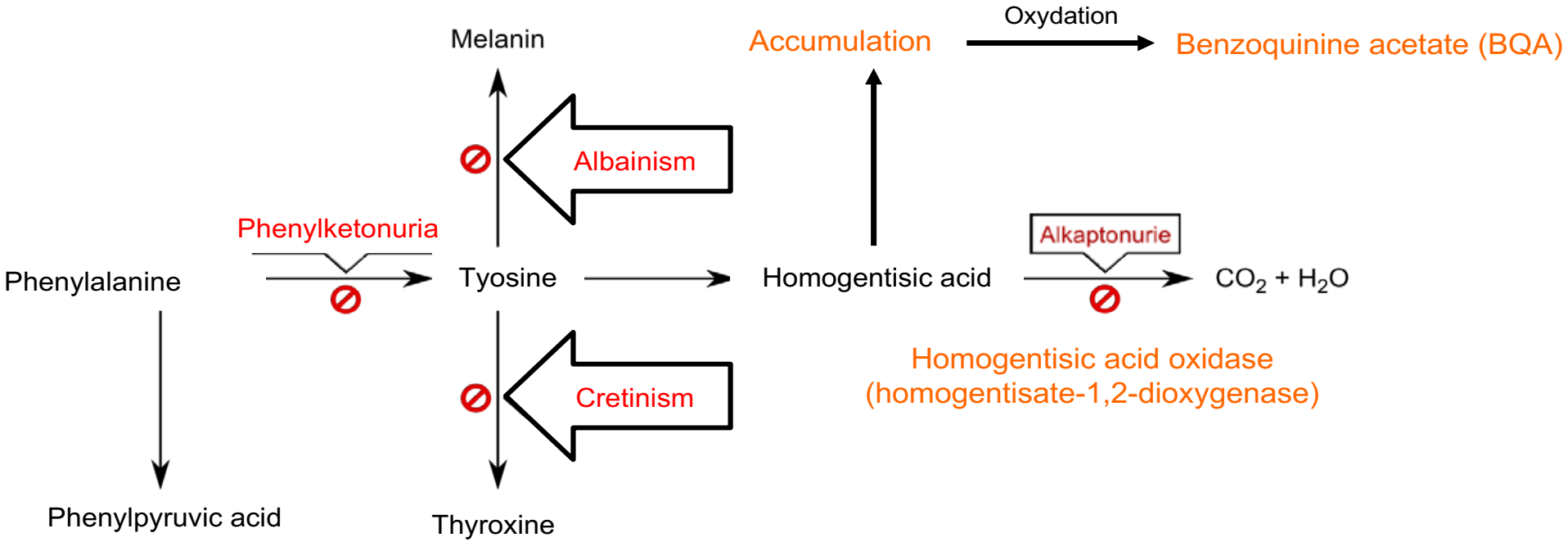

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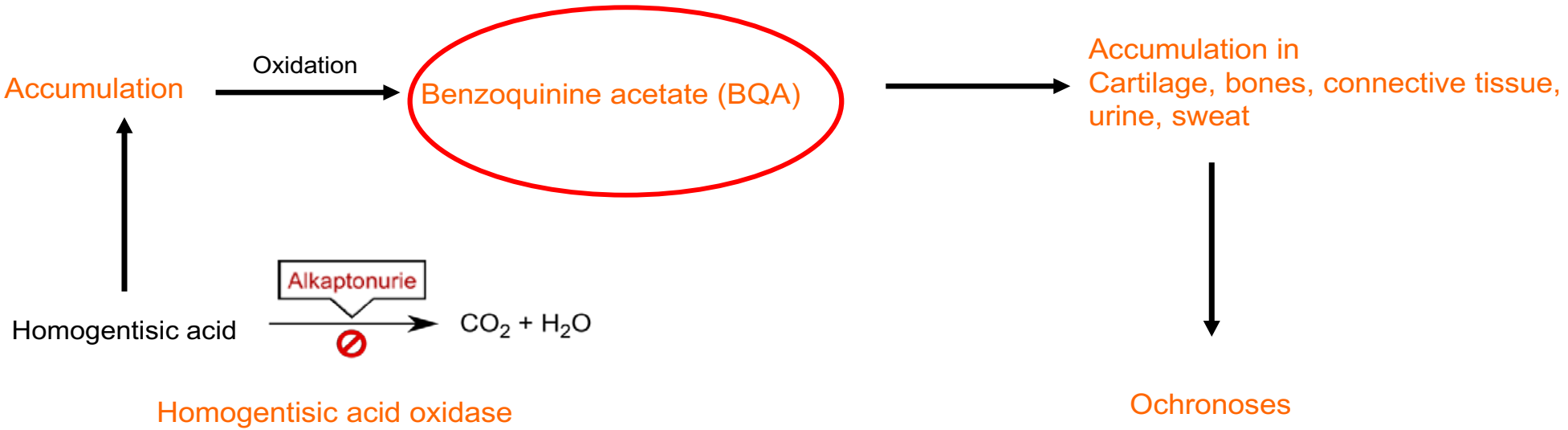

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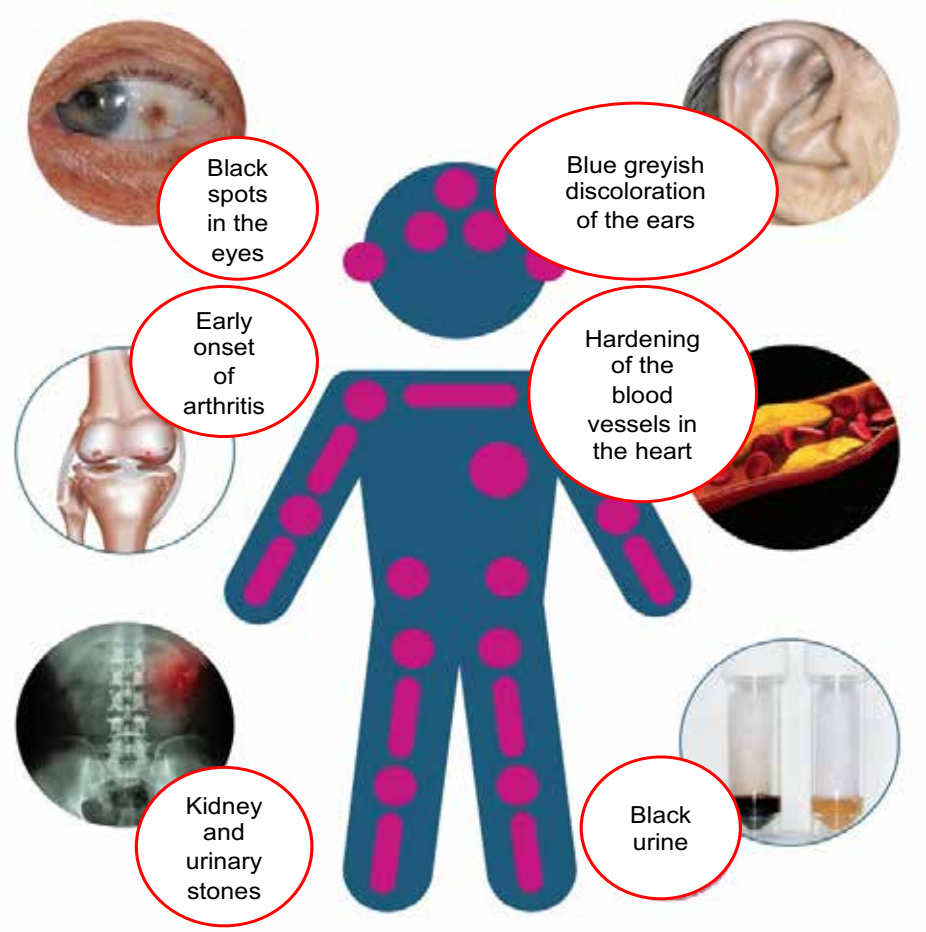


Ochronoses

# What is alkaptonuria? (AKU)

- Disruption of amino acid metabolism (phenylalanine, tyrosine)
- Genetic deficiency of homogentisic acid oxidase
- AKU is a hereditary disease (autosomal recessive)

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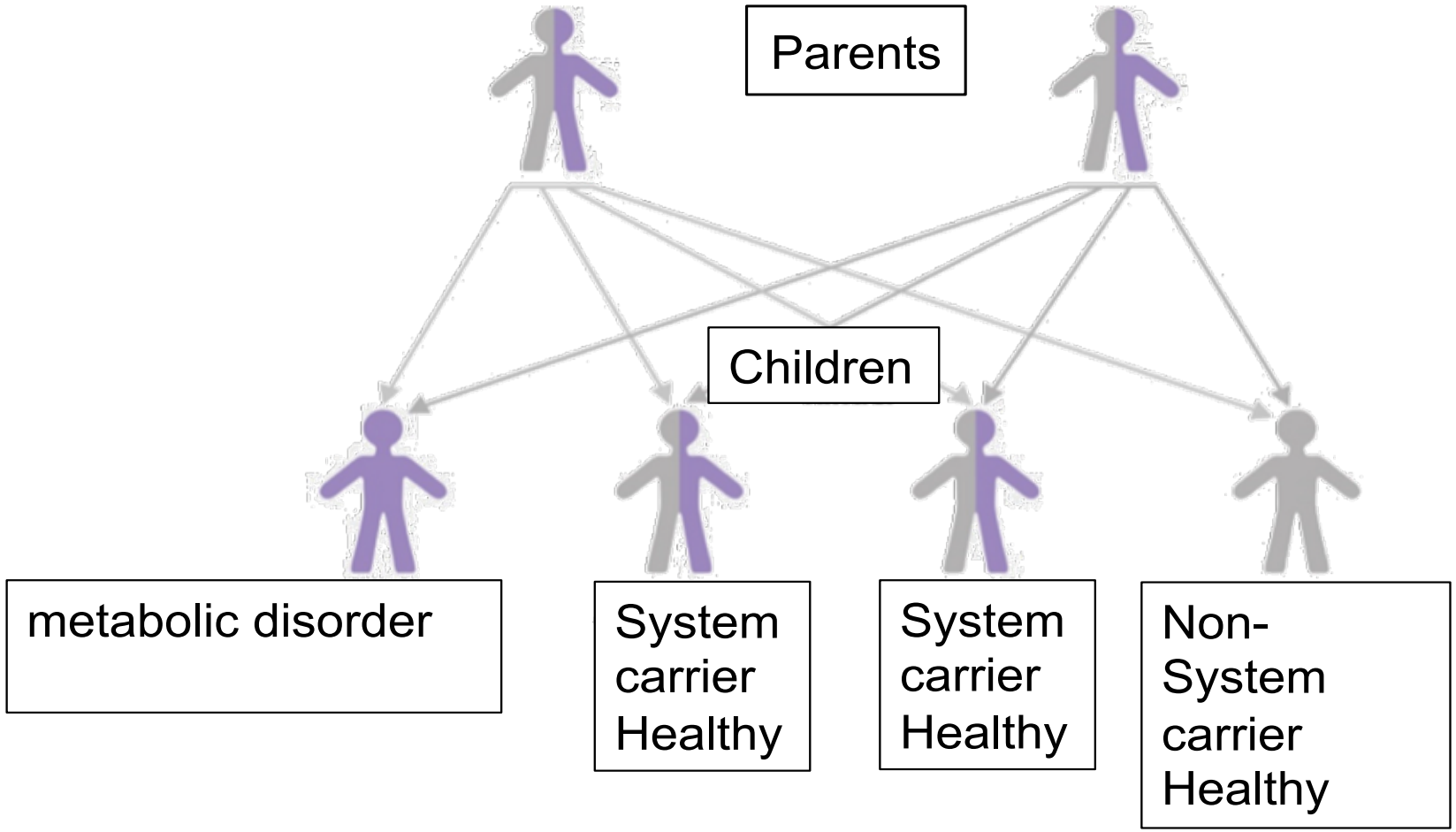


NUTRICIA
LIFE-TRANSFORMING NUTRITION

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# What is alkaptonuria? (AKU)

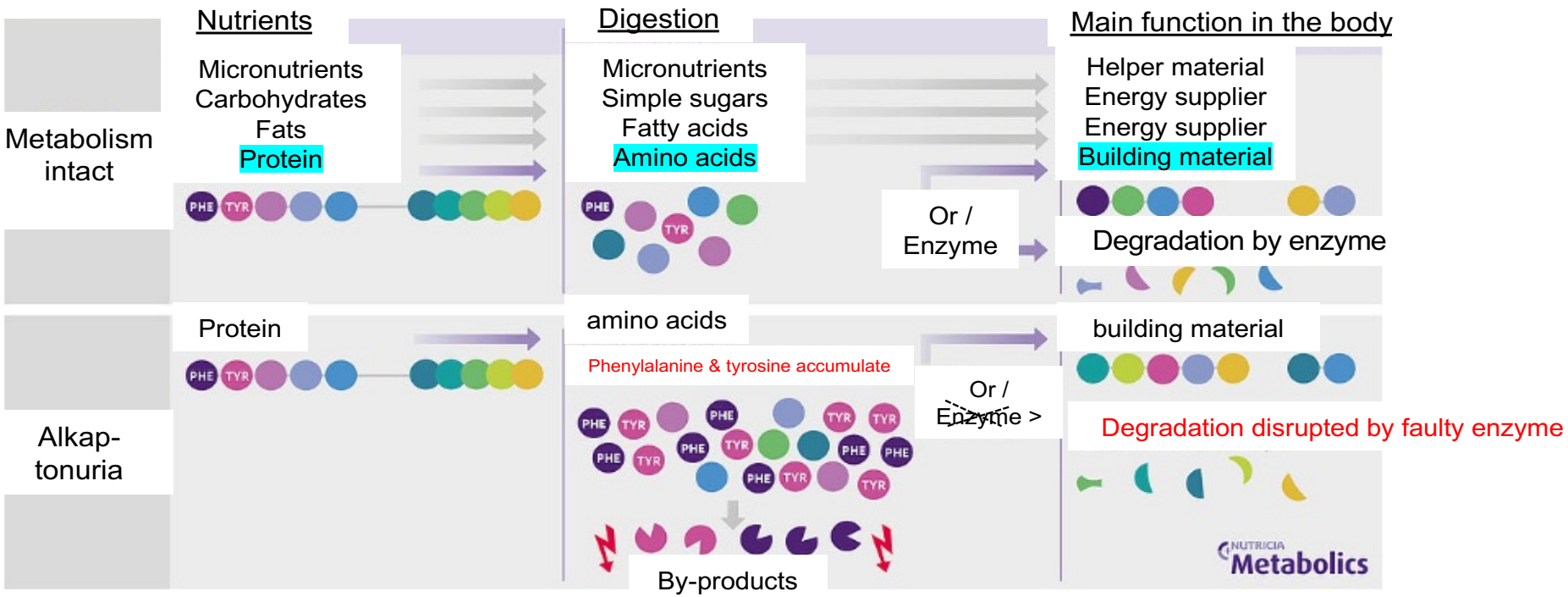
- Disruption of the amino acid metabolism (phenylalanine, tyrosine)
- Genetic deficiency of homogentisic acid oxidase
- AKU is a hereditary disease (autosomal recessive)
- Prevalence 1/250,000 to 1/1,000,000 (Slovakia 1/19,500)
- Life expectancy is not significantly reduced, wear and tear on the musculoskeletal system
- A definitive cure is not possible, BUT ...

orphanet

# The status of therapy recommendations

- Low protein diet is beneficial, with limited patient compliance

# The status of therapy recommendations



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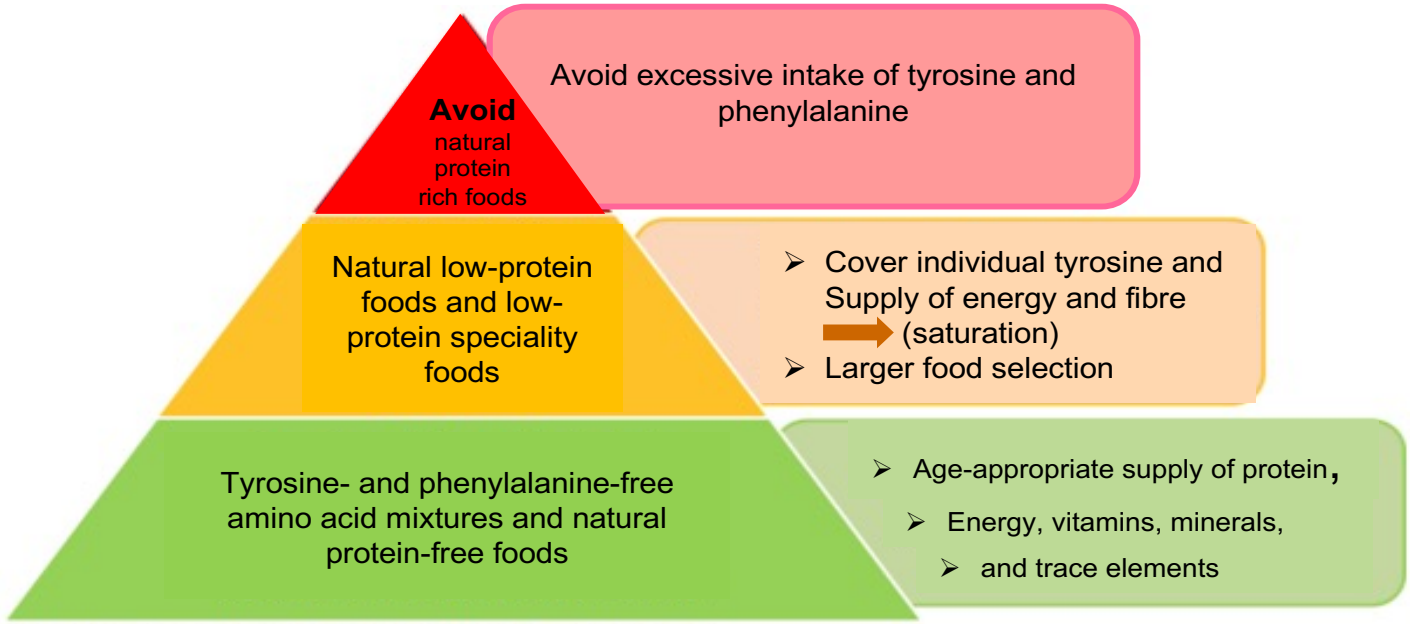
# The status of therapy recommendations

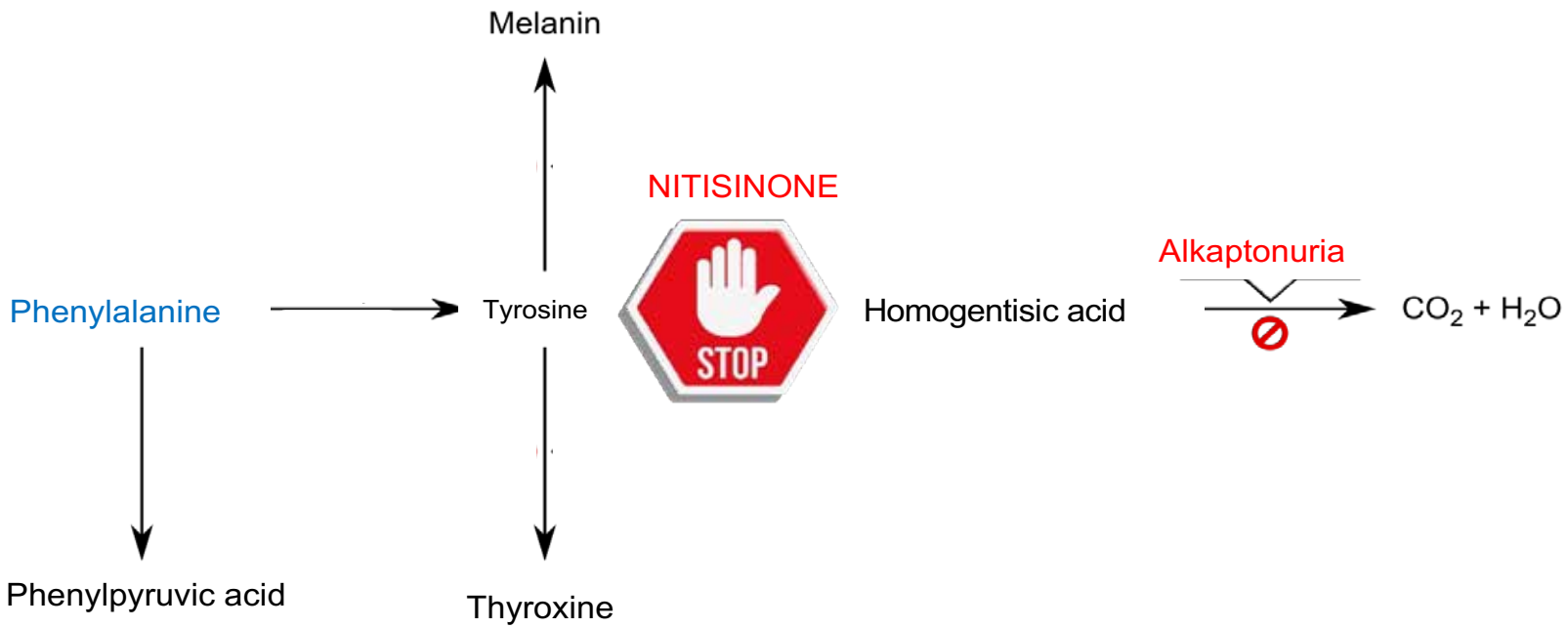
Natural low-protein foods and low-protein speciality foods



# The status of therapy recommendations

- Low protein diet is beneficial, with limited patient compliance
- Pain therapy with paracetamol, NSAIDs plus physiotherapy. Escalation if necessary
- If necessary, operations of the musculoskeletal system (hip, knee joint, spine)
- Nitisinone: Proven to slow the progression of the disease

# The status of therapy recommendations



# The status of therapy recommendations

- adult patients and children and adolescents (all ages)

  with a confirmed diagnosis of congenital tyrosinemia Type (HT-1) in combination

  with impaired uptake of tyrosine and phenylalanine.

- adult patients with alkaptonuria

- Nitisone prevents the formation of toxic intermediate products in the tyrosine

  degradation metabolism:

- Maleyl acetoacetate and fumaryl acetoacetate in tyrosinaemia type I Homogentic acid in alkaptonuria

# The status of therapy recommendations

**Side effects**

Due to its mechanism of action, Nitisinone is associated with an increase in **tysine concentrations** in all patients treated with Nitisinone. Common side effects associated with an increased tyrosine concentration are:

- **Conjunctivitis**
- **Corneal opacity**
- **Keratitis**
- **Photophobia**
- **Eye pain**

# The status of therapy recommendations

**Alternatives**

There are currently no approved alternatives to Nitisinone for the treatment of tyrosinaemia type 1 and alkaptonuria. However, alternative approaches are being researched. Such as **gene therapy**, **enzyme replacement therapy and stem cell therapy** to treat the defect in tyrosine metabolism.

NITISINONE Manufacturer (2, 5, 10, 20mg Hard capsules, 4mg/ml Suspension)

Orifarm, Swedish Orphan Biovitrum, Abacus, kohlpharma, HAEMATO, axicorp, CC Pharma, Cycle Pharmaceuticals, We Pharma Ltd, Dipharma