



MEDCEL

Bioquímica
Profª. Analina F. Valadão

Oxidação de Aminoácidos
Ciclo da Ureia

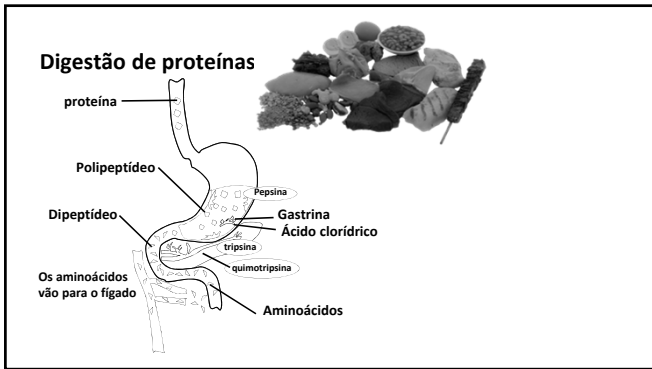
Degradação oxidativa de aminoácidos

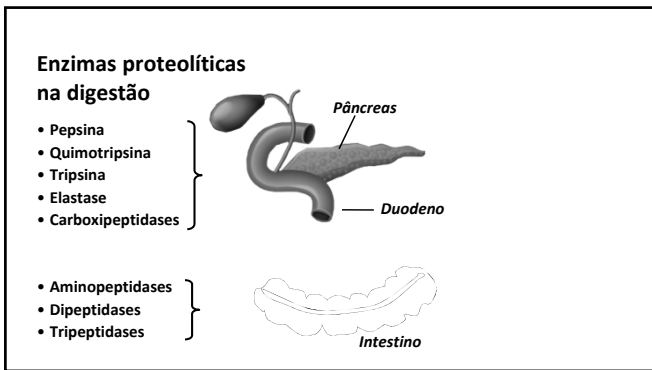
Renovação
proteica

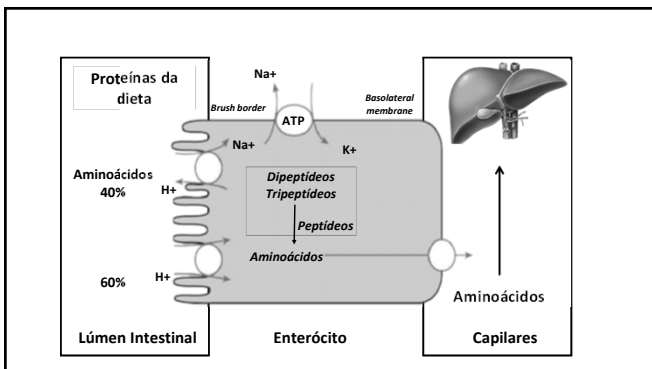
Jejum
Diabetes não
controlado

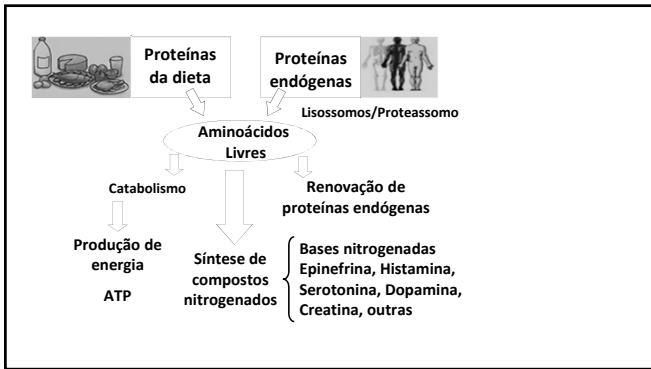
Dieta rica em
lipídios e pobre em
carboidratos

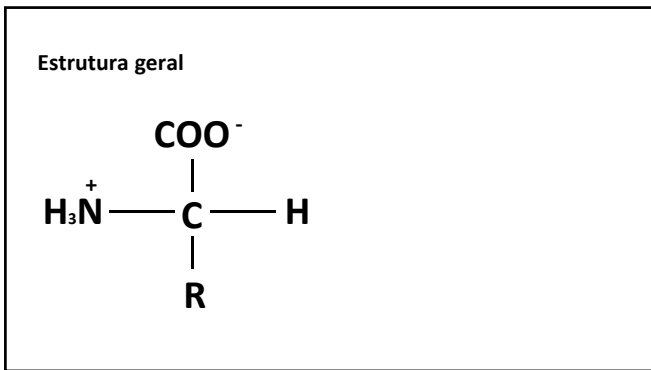
Dieta rica em
proteínas











$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_3 \end{array}$ Alanina A	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{H}_2\text{C} - \text{CH}_3 \end{array}$ Valina V	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{H}_3\text{C} - \text{CH}_2 - \text{CH}_3 \end{array}$ Leucina L	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{H}_2\text{C} - \text{CH}(\text{CH}_3) - \text{CH}_3 \end{array}$ Isoleucina I	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 \end{array}$ Prolina P
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{S} - \text{CH}_3 \end{array}$ Metionina M	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}(\text{C}_6\text{H}_5) - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 \end{array}$ Fenilalanina F	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}(\text{C}_6\text{H}_4 - \text{NH}_2) - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 \end{array}$ Triptofano W	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{H} \end{array}$ Glicina G	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}(\text{OH}) - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 \end{array}$ Serina S
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{HC} - \text{OH} \\ \\ \text{CH}_3 \end{array}$ Treonina T	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{SH} \end{array}$ Cisteína C	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{NH}_2 \end{array}$ Asparagina N	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{NH}_2 \end{array}$ Glutamina Q	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}(\text{OH}) - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 \end{array}$ Tirosina Y
$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{C}(\text{O}) - \text{O} \end{array}$ Ácido Aspártico D	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{C}(\text{O}) - \text{O} \end{array}$ Ácido Glutâmico E	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{NH}_2 \end{array}$ Lisina K	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{NH}_2 \end{array}$ Arginina R	$\begin{array}{c} \text{COO}^- \\ \\ \text{H}_3\text{N}^+ - \text{C} - \text{H} \\ \\ \text{CH}_2 - \text{CH}(\text{NH}_2) - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 \end{array}$ Histidina H

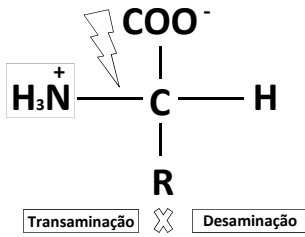
Degradação oxidativa de aminoácidos

Conceito:

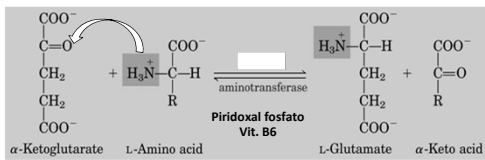
Conjunto complexo de vias catabólicas de degradação de aminoácidos para produção de energia

Não existe uma via catabólica comum para todos os 20 aminoácidos; grupos de aminoácidos possuem vias de degradação distintas, mas com produtos semelhantes

AMÔNIA ESQUELETO CARBÔNICO

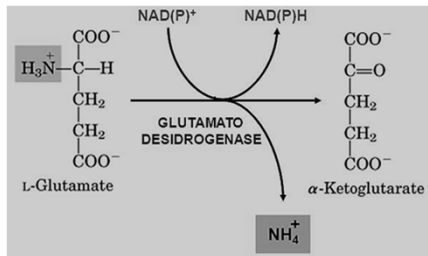


Transaminação

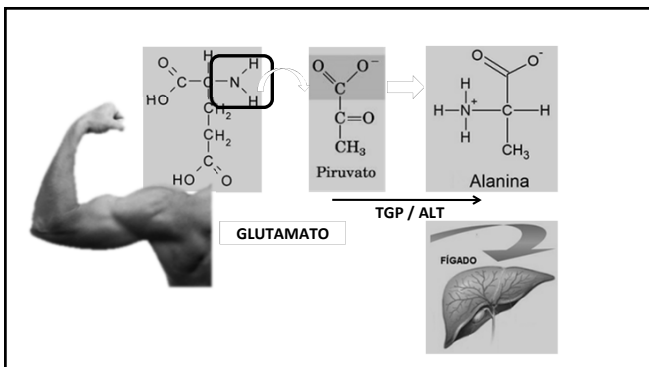


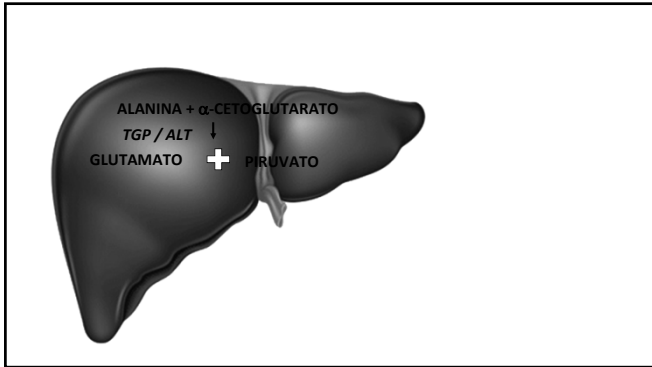
O grupo amino da maioria dos aminoácidos é usado para formar GLUTAMATO

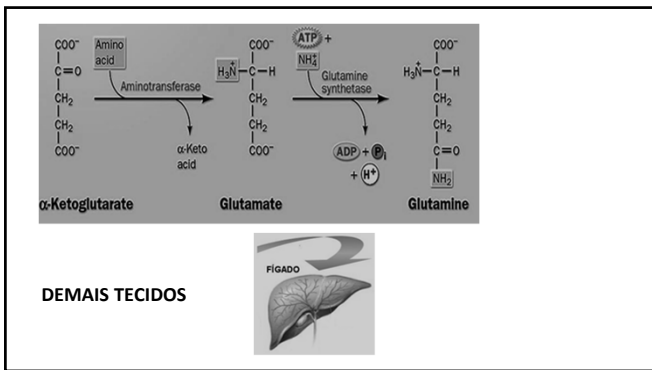
Desaminação

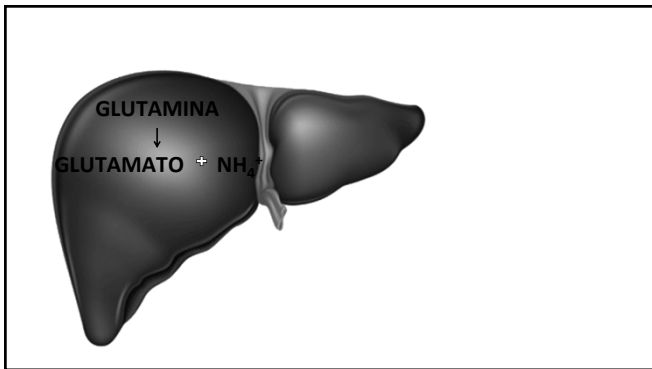


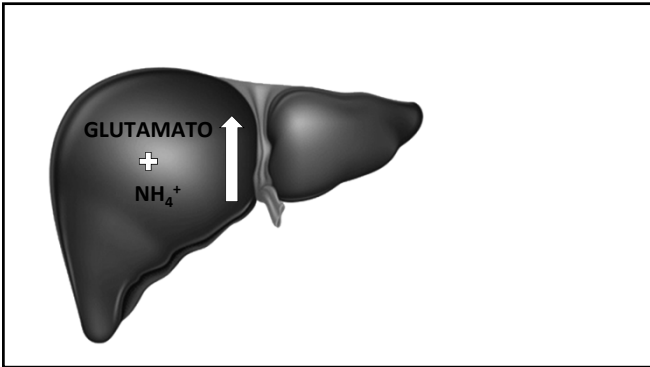


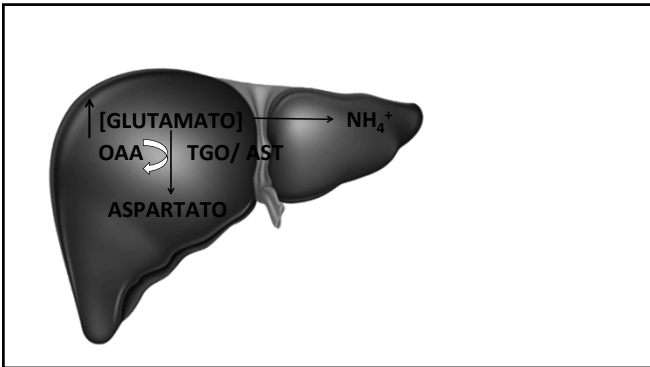


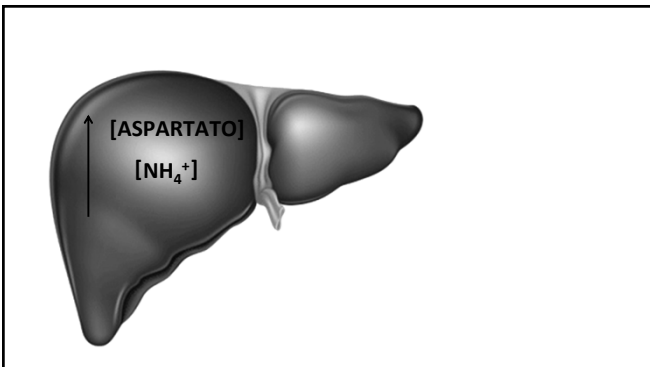


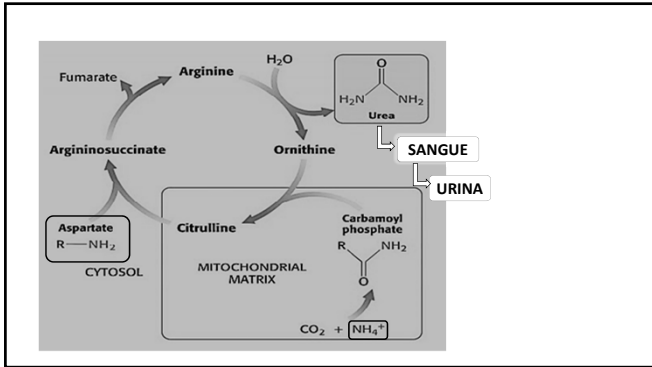


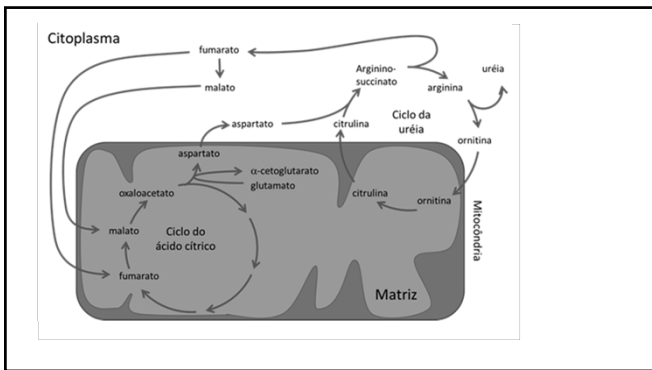


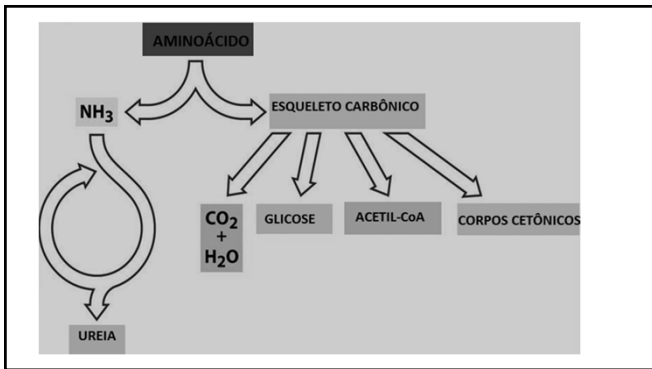




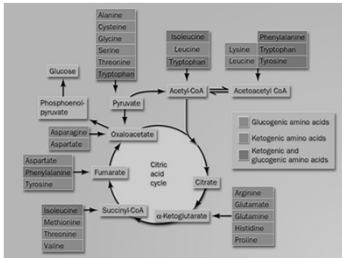








Destino dos esqueletos carbônicos dos aminoácidos:



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