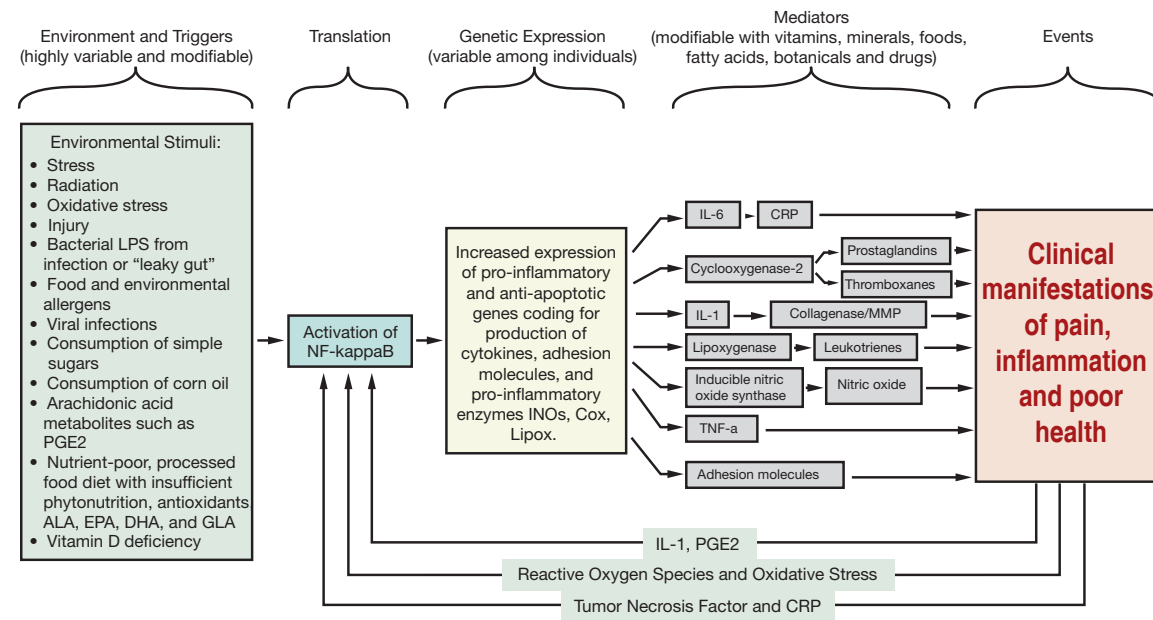


# Inflammation is a Destructive and Self-perpetuating Process



## Synergistic Inhibition of NF-kappaB as an Underlying Scientific Basis for Phytonutritional Supplementation and Dietary Modification of Inflammatory Pathways

An effective combination of these products may reduce the activation of NF-kappaB, thereby modifying inflammatory pathways.

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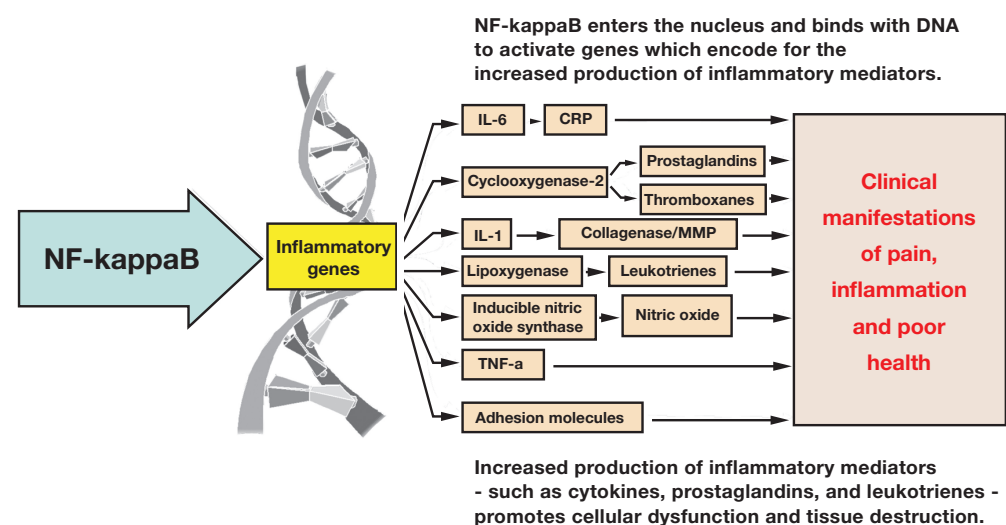
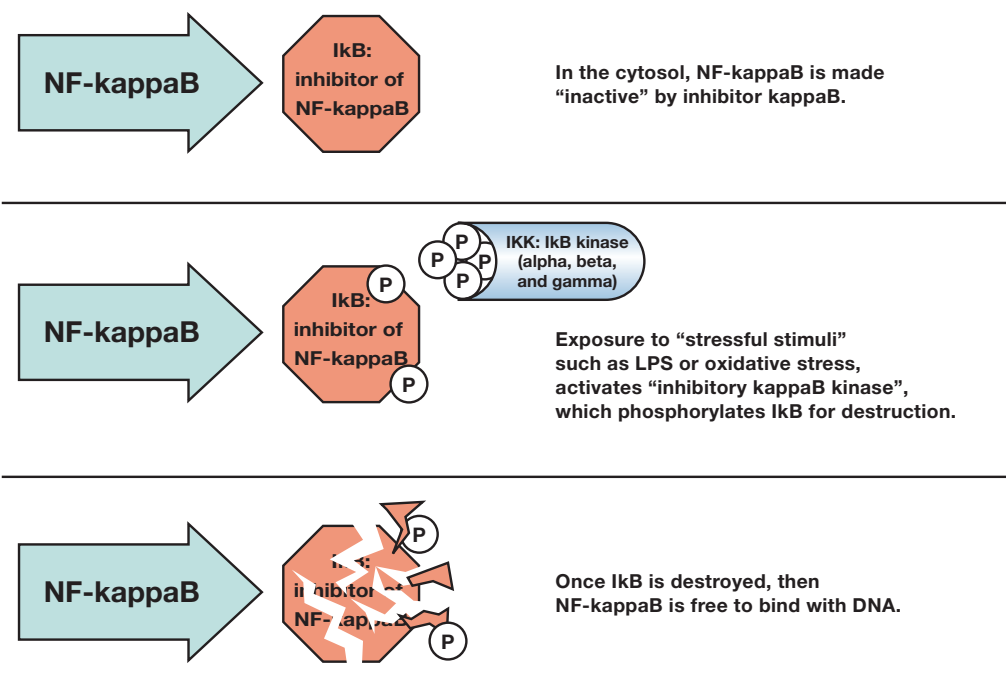
Alex Vasquez, DC, ND, DO

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.

- NF-kappaB is a molecule inside each cell that promotes pain and inflammation, and is associated with auto-immune and other unwanted health conditions.
- Inhibition of NF-kappaB is emerging as a primary goal for the reduction of pain and inflammation.
- Several natural products safely and effectively inhibit NF-kappaB, and they can be used in combination to help doctors attain improved outcomes in their patients.
- Application of this research is simple:
  - low-fat, low-sugar diet
  - daily use of
    - Bio-D-Mulsion Forte™**: 1-2 drops per day
    - KappArest™**: 4 caps 2 times per day
    - Optimal EFAs®**: 1-3 caps per day

*These products work together to promote optimal health.*

New research is showing that many inflammatory health problems are associated with inappropriate activation of **nuclear transcription factor kappaB**, generally referred to as NF-kappaB. Therefore, inhibition of NF-kappaB is now a major goal towards improving the well-being of patients.<sup>1</sup>



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## Natural Interventions that Inhibit NF-kappaB

Bio-D-Mulsion Forte®	Quote/example from the research literature
vitamin D	<ul style="list-style-type: none"> <li>"1 Alpha,25-dihydroxyvitamin D3 (1,25-(OH)2-D3), <b>the active metabolite of vitamin D, can inhibit NF-kappaB activity</b> in human MRC-5 fibroblasts, targeting DNA binding of NF-kappaB but not translocation of its subunits p50 and p65."<sup>2</sup></li> <li>"Thus, 1,25(OH)2D3 may negatively regulate IL-12 production by <b>downregulation of NF-kappaB activation</b> and binding to the p40-B sequence."<sup>3</sup></li> <li>Clinical studies have documented the benefits of vitamin D consumption, including studies of those with critical conditions.</li> </ul>

KappArest™	Quote/example from the research literature
Turmeric-curcumin (requires piperine for absorption)	<ul style="list-style-type: none"> <li>"Curcumin, EGCG and resveratrol have been <b>shown to suppress activation of NF-kappaB</b>."<sup>4</sup></li> </ul>
Lipoic Acid	<ul style="list-style-type: none"> <li>"ALA reduced the TNF-alpha-stimulated ICAM-1 expression in a dose-dependent manner, to levels observed in unstimulated cells. Alpha-lipoic acid also <b>reduced NF-kappaB activity in these cells in a dose-dependent manner</b>."<sup>5</sup></li> </ul>
Green tea extract	<ul style="list-style-type: none"> <li>"In conclusion, EGCG is an <b>effective inhibitor of IKK activity</b>. This may explain, at least in part, some of the reported anti-inflammatory effects of green tea."<sup>6</sup></li> </ul>
Rosemary	<ul style="list-style-type: none"> <li>"These results suggest that carnosol suppresses the NO production and iNOS gene expression <b>by inhibiting NF-kappaB activation</b>, and provide possible mechanisms for its anti-inflammatory and chemopreventive action."<sup>7</sup></li> </ul>
Grape seed extract	<ul style="list-style-type: none"> <li>"Constitutive and TNF-alpha-induced <b>NF-kappaB DNA binding activity was inhibited</b> by GSE at doses &gt; or =50 microg/ml and treatments for &gt; or =12 h."<sup>8</sup></li> </ul>
Propolis	<ul style="list-style-type: none"> <li>"Caffeic acid phenethyl ester (CAPE) is an anti-inflammatory component of propolis (honeybee resin). CAPE is reportedly a specific <b>inhibitor of nuclear factor-kappaB (NF-kappaB)</b>."<sup>9</sup></li> </ul>
Resveratrol	<ul style="list-style-type: none"> <li>"Resveratrol's anti-inflammatory and growth-modulatory effects may thus be partially ascribed to the <b>inhibition of activation of NF-kappaB</b> and AP-1 and the associated kinases."<sup>10</sup></li> <li>"Both resveratrol and quercetin <b>inhibited NF-kappaB</b>, AP-1- and CREB-dependent transcription to a greater extent than the glucocorticosteroid, dexamethasone."<sup>11</sup></li> </ul>
Phytolens® (Biotics Research Corp. exclusive patent)	<ul style="list-style-type: none"> <li>Phytolens® is Biotics Research Corporation's patented polyphenolic extract from lentils. Published research has documented that Phytolens® exhibits broad-based antioxidant properties, is a free radical scavenger, and shows beneficial effects on inflammatory processes.<sup>12</sup></li> </ul>

Optimal EFAs®	Findings from the research literature
ALA	<ul style="list-style-type: none"> <li>"CONCLUSIONS: Dietary supplementation with ALA for 3 months significantly decreases CRP, SAA and IL-6 levels in dyslipidaemic patients. This effect may provide a possible additional mechanism for the beneficial effect of plant n-3 polyunsaturated fatty acids in support of coronary and cardiac health."<sup>13</sup></li> </ul>
EPA and DHA	<ul style="list-style-type: none"> <li>EPA-derived eicosanoid properties include the reduction in the production of pro-inflammatory eicosanoids such as LT-B4, PAFs, and cytokines such as TNF-alpha and IL-1, as well as a large reduction in PG-E2 and TX-B2.<sup>14</sup></li> <li>DHA, like EPA, is an important component of cell membranes. DHA functions by improving receptor function and signal transduction. Bioactive metabolites of DHA (docosatrienes and resolvins) mediate potent anti-inflammatory benefits<sup>15</sup>, and DHA appears essential for optimal cognitive function.<sup>16</sup></li> </ul>
GLA	<ul style="list-style-type: none"> <li>GLA is the "health-promoting" n-6 fatty acid. GLA's benefits rely on its elongation to the biologically active DGLA from which eicosanoids that have cardioprotective and anti-inflammatory benefits are derived.<sup>17,18</sup></li> </ul>

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