Depression and the role of curcumin

WHAT IS DEPRESSION?12,13
Depression is a mood disorder that causes a persistent feeling of sadness and loss of interest. It affects how you feel, think, and behave, and can lead to a variety of emotional and physical problems. You may have trouble doing normal day-to-day activities, and depression may make you feel as if life isn’t worth living.

SYMPTOMS12-14
- Feelings of sadness, emptiness or unhappiness
- Anger outbursts, irritability or frustration
- Loss of interest or pleasure in normal activities
- Sleep disturbances, including insomnia or hypersomnia
- Tiredness and lack of energy
- Changes in appetite — reduced appetite and weight loss, or increased craving for food and weight gain
- Anxiety, agitation or restlessness
- Slowed thinking, speaking or body movements
- Feelings of worthlessness or guilt
- Difficulty with concentration, decision making and memory
- Thoughts of death or suicidal thoughts
- Unexplained physical symptoms, e.g. back pain or headaches

CAUSES12-14
The exact cause of depression remains unknown. However, as with many mental disorders, a variety of factors may be involved, such as:
- **Biological differences.** People with depression appear to have physical changes in their brains.
- **Brain chemistry.** Neurotransmitter imbalance — reduced levels of serotonin, dopamine and norepinephrine.
- **Hormones.** Changes in the balance of hormones may be involved in causing or triggering depression. Hormone changes can result from thyroid problems, menopause or a number of other conditions. About 50% of depressed individuals have elevated cortisol levels in their blood.
- **Genetic factors.** Depression is more common in people whose biological relatives also have this condition. The genetic risk of developing clinical depression is about 40% if a biological parent has been diagnosed with illness.
- **Life events.** Traumatic events such as the death or loss of a loved one, financial problems, high stress or childhood trauma can trigger depression.
- **Physical illness.** Certain cancers or compromised immune functioning may be involved.
- **Personality.** Certain temperament and personality styles pose a higher risk for developing depression, e.g. highly anxious, shy or social avoidance, self-criticism or low self-worth, high interpersonal sensitivity, perfectionism.

THE ANTIDEPRESSIVE ACTIONS OF CURCUMIN1,14-17

**NEUROPLASTICITY**
- **Curcumin enhances levels of BDNF**
- **Curcumin inhibits degradation of serotonin and dopamine**
- **Curcumin inhibits release of glutamate**

**NEUROTOXICITY**
- **Curcumin antioxidant**
- **Curcumin anti-inflammatory**

**PERIPHERAL IMMUNE SYSTEM**
- **IL-1**
- **IL-2**
- **IFN**
- **TNF**

**BDNF; brain-derived neurotrophic factor; MAO; monoamine oxidase; BH4; tetrahydrobiopterin; CRH; corticotropin releasing hormone; PGE2; prostaglandin E2; IL; interleukin; IFN; interferon; TNF; tumour necrosis factor; Th1; T helper cell 1; Th2; T helper cell 2**