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Ayurveda the Ancient Science of Healing: An Insight

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1. Introduction

The term Ayurveda, a Sanskrit word, translates into knowledge (*Veda*) of life (*Ayur*); *Veda* also means science. After being transmitted orally for thousands of years, the ancient Ayurvedic texts finally were written and preserved in Sanskrit (an ancient Indian language). Founded on the collective wisdom of ancient Hindu saints and healers, Ayurveda grew into a medicinal science. Ancient Ayurveda was meant essentially to promote health, however, rather than fight disease. The Ayurvedic text, an offspring of the *Atharvaveda*, appeared sometime in 1500 to 1000 BC and described two schools of learning physicians Atreya and surgeons Dhanvantari. *Charak Samhita* (1000 BC) and *Sushrut Samhita* (100 AD) are the main classics. Ayurveda materia medica gives detailed descriptions of over 1500 herbs and 10,000 formulations. Madhav Nidan (800 AD) a diagnostic classic provides over 5000 signs and symptoms. There are eight branches of study in Ayurveda: *Kaya Chikitsa* (General Medicine), *Kaumara Bhruthya* (Paediatrics), *Bhutha Vidhya* (Psychiatry), *Salakya* (ENT and Ophthalmology and dentistry), *Shalya* (Surgery), *Agada Tantra* (Toxicology), *Rasayana* (Rejuvenation Therapy) and *Vajeekarana* (sexual vitality) (Lad, 1995; Agnihotri, 2000; Chopra and Doiphode, 2002; Mukherjee and Wahile, 2006; WHO, 2010; Balasubramani et al., 2011).

1.1 Core concept of ayurveda

In Ayurveda, health is defined as the state where physical body, senses, and psyche are in original or natural state with respect to body and function. Ayurveda believes that both world and human body are made up of five elements earth, water, fire, air, and space (ether) called as *Panch-mahabhuta*. While we are a composite of these five primary elements, certain elements are seen to have an ability to combine to create various physiological functions (Mishra, 2004).

The human body according to Ayurveda is made up of somatic *dosas* (*Vata*, *pitta* and *kapha*) and psychic components (*satogun*, *rajogun* and *tamogun*), body tissues or *dhatu*s {*Rasa* (plasma), *Rakta* (blood), *Mansa* (muscular tissue), *Meda* (adipose tissue), *Asthi* (Bone), *Majja* (marrow and myeloid tissue) and *Shukra* (Sperm/Ovum)} and waste products or *malas* {*mutra* (urine), *purisha* (faeces) and *sveda* (sweat)} (Vasant, 2005).

Vata: Ether and air combine to form what is known in Ayurveda as the *Vata dosha*, *vata* governs the principle of movement and therefore can be seen as the force which directs nerve impulses, circulation, respiration, and elimination. *Vata* is dry, cold and light and correspond to the element *air*.

Pitta: Fire and water are the elements that combine to form the *Pitta dosha*. The *Pitta dosha* is the process of transformation or metabolism. The transformation of foods into nutrients that our bodies can assimilate is an example of a *pitta* function. *Pitta* is also responsible for metabolism in the organ and tissue systems as well as cellular metabolism. *Pitta* is oily, hot and light and correspond to the element *fire*.

Kapha: Water and earth elements combine to form the *Kapha dosha*. *Kapha* is responsible for growth, adding structure unit by unit. Another function of the *Kapha dosha* is to offer protection. Cerebro-spinal fluid protects the brain and spinal column and is a type of *Kapha* found in the body. Also, the mucousal lining of the stomach is another example of the *Kapha dosha* protecting the tissues. *Kapha* is wet, cold and heavy and corresponds to the element water (Sebastian, 2006; Walter, 2006).

These three *dosas* coexist in a predetermined proportion and function in a complementary manner to overall function of the total organism in spite of their opposite properties and functions. The existence of the *dosas* can be understood at both the macromolecular and micromolecular levels. A balance in the activity of these *dosas* is necessary for health.

2. Pathogenesis of disease

According to Ayurveda, there are three main causes of disease, namely *asatmyendriyārtha samyoga* (indiscriminate use of senses and their objects), *prajna-aparadha* (error of intellect resulting in a loss of discrimination between wholesome and unwholesome with subsequent indulgence in unwholesome diets and behaviour) and *kala- parinama* (seasonal variation, cosmic effects and the effects of time) (Frank, 2001).

Pancha lakshana nidana, the five components of the pathology of a disease, assists in diagnosis. They are *nidana* (causative factors), *purvarupa* (prodromal symptoms/ incubatory symptoms), *rupa* (signs and symptoms), *samprapti* (pathogenesis) and *upashaya* (diagnostic tests).

Samprapti: The concept of six stages of pathogenesis is vital for an understanding of the pathological states of the *doshas* that result in disease. First stage is called as *Sanchaya* (accumulation), due to weak digestive power and accumulation of *ama* (toxins) causes imbalance in *doshas*. The second stage is *Prokapa* (aggravation), the accumulated, stagnant *doshas* are excited by factors as *ahara*, *vihara* and seasons. Stage three called as *prasara* (overflowing/ spread), in this stage, the toxins accumulated start overflowing. Generally, up to this stage the damage is entirely reversible and restoration of *doshas* balance can be achieved with proper measures.

Sthanasamsraya (localization/ agumentation) is stage four characterized by migration of overflowing toxins in localized weak or defective *dhatu*s thereby leading to malfunction and structural damage.

Vyakti (manifestation) and *bheda* (chronic complications) are fifth and sixth stages of pathogenesis, characterized by appearance of symptoms of diseases and chronic manifestation respectively.

3. Diagnosis of disease

The starting place of a successful treatment is a clear diagnosis. ayurvedic diagnostic methods are founded on the three methods of knowing (*pramana*). These are direct *pratyaksa* (perception), *aptopadesa, sabda* (textual authority) and *anumana* (inference). The most clinically useful is direct perception and it includes *Susruta's* threefold methods of diagnosis *trividha pariksa* that includes *sparsana* (palpation), *darsana* (looking), and *prasana* (questioning). Caraka has mentioned that direct perception (*pratyaksa*) includes using the five senses meaning that listening, feeling, looking, smelling and tasting. Later on it became *astasthanana pariksa* which includes examination of *nadi* (pulse), *mutra* (urine), *malam* (faeces), *jihva* (tongue), *shabda* (voice), *sparsha* (skin or touch), *drika* (sight or eyes) and *akriti* (appearances, face, overall appearance) (Tirtha, 1998; Mishra, 2004; Vasant, 2005; Sebastian, 2006).

4. Dravyaguna vigyan (ayurvedic pharmacology)

In Ayurveda, substances of natural origin, including whole plants or their parts, animal parts and minerals, are used as medicines, either alone or in combination. In addition, various other measures are used in an attempt to maintain health in a healthy person and alleviate disorders of the body and mind. These substances act on the principles of *samanya* (homologous) and *visesha* (antagonistic) action.

Substances possessing homologous properties and actions increase the relevant elemental properties or constituents of the body while those having antagonistic properties or actions decrease those properties or constituents. In cases of disease or imbalance of *dosha, dhatu* and *mala*, the rational use of naturally available substances aims to restore normality.

The composition of elements in medicines and the diet is studied in terms of various properties, referred to as *rasa, guna, virya, vipaka* and *prabhava*. The effect and action of the medicines or diet depends on these properties.

Rasa (taste): Taste of medicine as perceived by tongue.

There are six different tastes, each with a predominance of two elements and showing the characteristics of these elements. Administration of a medicine featuring a particular *rasa* enhances that property in the body and decreases its opposite. The six tastes are *madhura* (sweet), *amla* (sour), *lavana* (salty), *katu* (pungent), *tikta* (bitter) and *kashaya* (astringent). Tastes provide varying degrees of nourishing strength. Sweet taste is the most nourishing, and as each taste becomes less nourishing, it becomes more bitter, until it is astringent and the least nourishing.

Guna (attributes): Not be measurable but inferred through their pharmacological action, *guna* is property of a medicine detected by sense organs other than the tongue. It appears that *guna* are intimately related to *rasa* it is a fact that both are separate principles co-existent in the *dravya* (substance). They are 20 in number and represent the characteristics of the elements. There are 10 pairs of contrasting characteristics - *guru* (heavy)/ *laghu* (light),

manda (dull)/ *tikshna* (sharp), *sita* (cold)/ *ushna* (hot), *snigdha* (unctuous)/ *ruksha* (non-unctuous), *slakshna* (smooth)/ *khara* (rough), *sthira* (immobile)/ *sara* (mobile), *mridu* (soft)/ *kathina* (hard), *visada* (clear)/ *picchila* (slimy), *sandra* (solid)/ *drava* (fluid), *sthula* (bulky)/ *sukshma* (fine).

Virya: Denotes the potency of the medicine. There are eight *virya* namely *mridu*, *teekshana*, *guru*, *laghu*, *snigdha*, *ruksha*, *ushna* and *sita*, representing the active *gunas*. These can be put into two broad categories – *sita* (cooling) and *ushna* (heating).

Vipaka (postdigestive effect): It is the postdigestive effect of *rasas*, the same elements predominate as in the original *rasas*, with the corresponding action. There are three *vipakas*. A sweet taste becomes *madhura vipaka*; sour and salty tastes become *amla vipaka* and pungent, bitter and astringent tastes become *katu vipaka*.

Prabhava (pharmacological action): *Prabhava* has been defined as the special property of a substance which produces actions different from and contrary to those ascribed to *rasa*, *guna*, *virya* and *vipaka*. The chemical composition which largely determines the secondary qualities of a *dravya* (substance) such as *rasa*, *guna*, *virya* and *vipaka* does not determine a chemical compound. The *rasa*, *guna*, *virya* and *vipaka* of Danti (*Baliospermum montanum*.) and Chitraka (*Plumbago zeylanica*) being apparently identical, the former produces purgation, whereas the latter does not produce this action and the specific purgative action of Danti is attributed to its *prabhava* (inexplicable nature) (Paranjpe, 2001; Nishteswar, 2007).

5. Ayurvedic *chikitsa* (therapeutics)

Ayurveda says that healthy of an individual is preserved due to equilibrium of the *doshas*. In diseased people, treatment eliminates the disequilibrium between the *doshas*, and the body is restored to normality. The body has its own intelligence to create balance, ayurvedic treatments helps in that process.

Diseases are treated by *nidana parivarjana*, (avoidance of causative and provocative factors), *shodhana* and *panchakarma* (purifying therapies), *shamana* (palliative therapies) and *rasayana* (rejuvenation) and *vajikarana* (aphrodisiac).

5.1 *Nidana parivarjana* (preventive measures)

The preventive measures or *nidana parivarjana* includes *swastha varta* (personal hygiene), *dinacharya* (daily routine), *ritucharya* (seasonal corrections) and *sadachara* (appropriate behaviour).

5.2 *Shodhana karma* (purifying therapy)

Formation of toxins reduces that natural capacity of body for healing and rejuvenating. The *shodhan karma* such as *panchakarma* enables the body to release excess *doshas* and *ama* (toxins) from cells.

Panchakarma: Is the method of *shodhana*/detoxification or elimination of toxins from the body. It is divided in three stages *poorvakarma* (preparatory procedures) *pradhan karma* (main therapy) and *uttara karma* (post therapy care).

Poorvakarma (preparatory procedures) includes *snehana* (oleation therapy) and *swedana* (fomentation therapy).

Snehana or oleation therapy involves saturation of the body with herbal & medicated oil via external & internal oleation to make body soft and disintegrate the *doshas*. *Shirodhara* is the most commonly employed pre-procedure; it means the dripping of oil like a thread (*dhara*) on the head (*shiro*). This treatment drips warm oil in a steady stream on the forehead, particularly on the brow and in the region between the eyes. It is often added to the *panchakarma* regimen because it pacifies *vata* and calms the central system. It cleans both the mind and the senses which allow the body's natural healing mechanisms to release stress from the nervous systems.

Swedana/fomentation or sweating is necessarily follows oleation, *Swedana* is induced by heat from different sources it brings sweat on the skin through hair follicles by opening the pores of the skin. Fomentation increases the *agni* (biofire) and the fatty tissue gets mobilised. It also throws out *ama* (toxins/waste) through the skin and helps in liquefying aggravated *doshas*. *Swedana* has two main types, *agni sweda* wherein heat is applied directly as steam and *anagni sweda* where no external heat source is necessary e.g exercises, fighting, walking, lifting heavy loads, exposure to sunlight, putting heavy blankets over the body etc.

Pradhan Karma is consists of the five essential purificatory therapies namely *vamana* (vomiting), *virechan* (purgation), *anuvasana* and *niraha* (medicinal enema), *nasya* (nasal insufflation, administration) and *raktamocana* (blood cleansing).

Vamana (emesis): It is therapeutic emesis; done regularly to cleanse the stomach and remove *ama* (toxins) and mucus from chest. It is used for relieving recent fever, diarrhea, pulmonary infections, skin diseases, diabetes mellitus, goiter, and obesity. *Vamana* is induced using herbs such as *vacha* (*Acorus calamus*) and *licorice* (*Glycyrrhiza glabra*).

Virechan (purgation): This is the simplest method of *panchakarma* and has most easily observed effects. It is an excellent method to heal various conditions, including abdominal tumors, hemorrhoids, smallpox, patches of skin discoloration on the face, jaundice, chronic fevers and enlarged abdomen. Strong cathartic and laxative herbs such as *jaiphala* (*Croton tiglium*), *aragwad* (*Cassia fistula*), or *castor oil* (*Ricinus communis*) are used for induction of purgation.

Anuvasana and *niraha* (enemas): For patients emaciated by fever, neither *vamana* nor *virechan* is useful. The mala (digestive waste and toxin) of patients is removed by *niraha* by using decoction enemas. To prevent aggravation of *vata*, an oil enema (*anuvasana basti*).

Nasya (Nasal cleansing therapy): *Nasya* means nasal administration of medicated powders or liquids. It is a procedure in which medicament administered through the nostrils in order to purify the head and neck region. *Nasya* is useful in relieving stiffness in the head, neck arteries, throat, and jaw obstructions, *nasya* is useful in disorders of the neck, shoulders, ears, nose, mouth, head, cranium, and scapula.

Raktamokshana (Blood-letting): The small amount of blood is removed intravenously or by leeches, the toxins are removed quickly from systemic circulation. It is useful in blood toxemia, hypertension and skin disorders. *Raktamokshana* is contraindicated in anemia and pregnancy.

Uttara karma: It is important to resume or establish a diet and lifestyle that is harmonious with one's constitution. If a person returns to old, bad habits, they may worsen their condition by suppressing the renewed healing energies. The toxins may then directly enter cleansed tissues and go deeper than before, causing severe diseases. During convalescence, persons avoid loud talking, bumpy rides, long walks, excessive sitting, and eating, if experiencing indigestion. To avoid aggravating the humors, persons also avoid eating unwholesome food, day naps, and sexual relations (Ojha et al., 1978; Joshi, 2005).

5.3 Shamana karma (alleviation therapy)

According to Ayurveda, *shamana* is the balancing and pacification of bodily *doshas*, *shamana* is used when *panchakarma* is inappropriate due to the poor strength of the patient. *Shamana* consists of *dipana*, *pacana*, *vrata* or *ksunnigraha*, *trsna* or *ernnigraha* Vyayama, *Atapasevana* and *Marutha*.

Dipana (enkindling): *Dipana* means enkindling the digestive fire by using warm meals, hot water, eating a small piece of fresh ginger mixed with lime juice and salt before a meal, having a short walk before meals to stimulate the *agni*. *dipana* is absolutely necessary in *kapha* and *vata* disorders, where the person has low gastric fire.

Pacana (digestion): *Pacana* means digesting of *ama* (toxins) and undigested residues, *pacana* uses many of the same herbs as *dipana* but instead of taking them before a meal they are taken afterwards and usually at double the dose. These hot herbs literally burn the *ama*. The indication for using *pacana* is when there is hunger but not enough 'fuel' to fan the digestive flames. These spices are the fuel. Of course, when there are already inflammatory conditions, such as ulcers, caution must be taken.

Vrata or *ksunnigraha* (fasting): *Ksunnigraha* means to 'hold onto your hunger. Fasting inspire a healthy hunger; a true need for food taken in the balanced quantity. Fasting or monodiet are suggested according to *dosha*. *Vata* people can do a short fast on hot liquid soups, *pitta* constitution can do a liquid fast on fruit juices such as grape or pomegranate and *kapha* types can do a literal fast; although this is a great struggle for them as it challenges their tendency to hold onto things.

Trsna or *Ernnigraha* (observing thirst): Not drinking water or fasting from water is known as *trsna* or *ernnigraha*. *Trsna* is beneficial in water diseases such as oedema, diabetes or kidney problems. It reduces the stress on the water channels in the body (*ambuvahasrotas*).

Vyayama (exercise and yoga): Ayurveda says exercise has such a quality that it strengthen the *dhatu*s, increase *agni*, improve circulation, accelerates the heart rate, enhances the combustion of calories and also stimulates metabolism, regulates body temperature and maintains body weight. Exercise makes your senses alert and attentive and your mind becomes very sharp and develops keen perception. These qualities of exercise are very important, but again, exercise varies from person to person, *Vata* types should do more relaxing and gentle exercise. *Kapha* people can do more vigorous exercise and *pitta* should exercise regularly but moderate.

Atapa seva (sunbathing): The sun is the source of heat and light. *Atapaseva* is very useful for lightening the body, increasing the *agni* and treating *bhrajaka pitta*. Many conditions are

improved by sitting in the sun; certain types of eczema, psoriasis, arthritis, depression and water retention to name a few. Lying in the sun and meditating upon the solar plexus, is a wonderful *shaman* for *kapha* and *vata*. It improves circulation, the absorption of vitamin D, and strengthens the bones.

Maruta/ Marutaseva (wind-bathing): *Marutaseva* is specifically relates to the yogic practice of *pranayama* and of becoming inherently tuned into deep slow breathing using a deep inhalation and long exhalation. It is about imbibing *prana*; the life force surfs on the breath and flows deep into our tissues. Specific problems such as asthma, bronchitis and emphysema greatly benefit from this practice. Also people with a tendency to experience excessive anxiety and fear in their lives benefit from watching the breath flow in and out of themselves.

5.4 Rasayana (rejuvenative) and vajikarana (aphrodisiac)

Rejuvenation involves *brmhana* (building therapy) using tonic herbs such as ashwagandha (*Withania somnifera*), shatavari (*Asparagus racemosus*) and bala (*Sida cordifolia*) to nourish all the tissues, build the strength, enhance ojas and strengthen immunity. It also involves eating building foods like nuts, ghee and dairy products.

Rasayana (tonic): In Ayurveda tonics are sweet, heavy and oily in quality. The sweet flavour increases the quantity and quality of the tissues as it is anabolic. So many of the modern wonder herbs that boost immunity are full of immune-enhancing saponins and polysaccharides. The sweet flavour is tonifying and rejuvenating, but it must be of a high quality and fully digested to benefit the whole system. Popular ayurvedic tonics are chayawanaprash, ghee and walnuts (*Juglans regia*).

Vajikarana (aphrodisiacs): This refers to herbs that nourish the reproductive organs, increase fertility, promote libido as well as prevent ageing. Herbs such as kapikacchu (*Mucuna pruriens*), ashwagandha (*Withania somnifera*) and amalaki (*Emblica officinalis*) are renowned reproductive tonics as well as being antioxidants (Frawley, 2000; Panda 2000; Acharya, 2005; Sudarshan, 2005; McIntyre, (2005); Murthy and Pandey, 2008).

6. Discussion

Ayurveda has been practiced in India for over 5000 years and is recognized as a complete medical system comparable with allopathic medicine by the government of India. In India, Ayurveda has a complete infrastructure, medical colleges, hospitals integrated with allopathic medicine, research institutes, and scientific journals devoted to Ayurveda. In addition, India's Ayurvedic pharmaceutical industry is governed by the same food and drug laws that regulate conventional drugs. Research in pharmacology, biochemistry, phytochemistry, and clinical trials of Ayurvedic therapies currently constitutes a substantial portion of the total research conducted in government institutes and medical colleges in India (Mishra, 2004).

Ayurveda has the potential to develop into a global health-care system. The concepts of proper lifestyles, personal hygiene, daily routine, seasonal corrections, diet, yoga and herbal therapy can be adopted with suitable modification to different countries in different parts of

the globe after giving due consideration to the culture, life style and available medicinal plant resources of the countries.

| Name of Category | Meaning in English | Name of Category | Meaning in English |
|----------------------------|-----------------------|--------------------------|--------------------------|
| <i>Angamarda-prasamana</i> | Pain relieving | <i>Purisa-virajaniya</i> | Faecal depigmenter |
| <i>Anuvasanopaga</i> | Unctuous enemata | <i>Sandhaniya</i> | Healing |
| <i>Arsoghna</i> | Anti-haemorrhoidal | <i>Sanjna-sthapana</i> | Energising |
| <i>Asthapanopaga</i> | Corrective enemata | <i>Sirovirecanopaga</i> | Errhines |
| <i>Balya</i> | Tonic | <i>Sita-prasamana</i> | Calefacient |
| <i>Bhedaniya</i> | Laxative | <i>Snehopaga</i> | Moisturising |
| <i>Brmhaniya</i> | Bulk-promoting | <i>Sonita-sthapana</i> | Haemostatic |
| <i>Chardi-nigrahana</i> | Anti-emetic | <i>Srama-hara</i> | Energy compensator |
| <i>Daha-prasamana</i> | Refrigerent | <i>Stanya-janana</i> | Galactagogue |
| <i>Dipaniya</i> | Appetite stimulant | <i>Stanya-sodhana</i> | Galacto-depurant |
| <i>Hikka-nigrahana</i> | Anti-hiccough | <i>Sukra-janana</i> | Semen promoting |
| <i>Hrdya</i> | Cordial | <i>Sukra-sodhana</i> | Semen depurant |
| <i>Jivaniya</i> | Vitalising | <i>Sula-prasamana</i> | Intestinal antispasmodic |
| <i>Jwara-hara</i> | Anti-pyretic | <i>Swasa-hara</i> | Anti-dyspneic |
| <i>Kandughna</i> | Anti-pruritic | <i>Swayathu-hara</i> | Anti-phlogistic |
| <i>Kanthya</i> | Beneficial for throat | <i>Swedopaga</i> | Diaphoretic |
| <i>Kasa-hara</i> | Antitussive | <i>Trptighna</i> | Thirst-quenching |
| <i>Krimighna</i> | Anthelmintic | <i>Trsna-nigrahana</i> | Anti-dyspeptic |
| <i>Kusthaghna</i> | Anti-dermatosis | <i>Udara-prasamana</i> | Anti-allergic |
| <i>Lekhaniya</i> | Emaciating | <i>Vamanopaga</i> | Emetic |
| <i>Mutra-sangrahaniya</i> | Anti-diuretic | <i>Varnya</i> | Complexion-promoting |
| <i>Mutra-virajaniya</i> | Urinary depigmentor | <i>Vayah-sthapana</i> | Rejuvenating |
| <i>Mutra-virecaniya</i> | Diuretic | <i>Vedana-sthapana</i> | Analgesic |
| <i>Praja-sthapana</i> | Anti-abortionificient | <i>Virecanopaga</i> | Purgative |
| <i>Purisa-samgrahaniya</i> | Intestinal astringent | <i>Visaghna</i> | Anti-poison |

Table 1. Pharmacological categories of various drugs used in Ayurveda.

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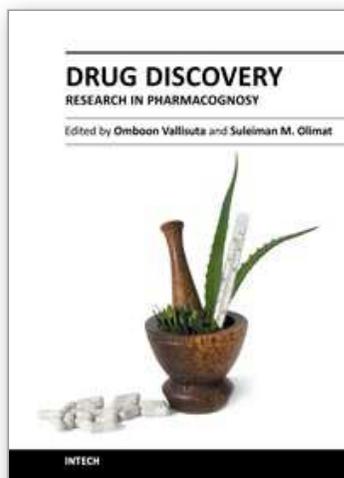
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Drug Discovery Research in Pharmacognosy

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This book, Drug Discovery Research in Pharmacognosy provides a full picture of research in the area of pharmacognosy with the goal of drug discovery from natural products based on the traditional knowledge or practices. Several plants that have been used as food show their potential as chemopreventive agents and the claims of many medicinal plants used in traditional medicine are now supported by scientific studies. Drug Discovery Research in Pharmacognosy is a promising road map which will help us find medicine for all!

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