XP-828L (Dermylex), a new whey protein extract with potential benefit for mild to moderate psoriasis

Réjean Drouin, Éric Lamiot, Kim Cantin, Sylvie F. Gauthier, Yves Pouliot, Patrice E. Poubelle, and Christina Juneau

Abstract: Natural health products (NHPs) or complementary and alternative medicine (CAM) are commonly used to prevent disorders or support the usual treatments of many diseases. XP-828L, a whey protein extract, has demonstrated potential benefits for the treatment of mild to moderate psoriasis. The aim of this study was to analyze further clinical data that demonstrated the clinical benefits and safety of the XP-828L in patients with psoriasis and the potential mechanism of action of this product in vitro. Oral administration (2.5 g, twice a day, over 112 days) of XP-828L in 42 human subjects with mild to moderate psoriasis improved their PGA scores (physician’s global assessment). Moreover, no significant changes in haematology or hepatic and renal parameters were observed throughout the study period, indicating the safety of the product. In vitro experiments showed that XP-828L decreased the proliferation of concanavalin A (ConA)-stimulated murine splenocytes and their production of interleukin (IL)-2 and interferon (IFN)-γ. Although the in vivo mechanism of action of XP-828L remains unknown, XP-828L represents an NHP to be used as an alternative or concomitant treatment for mild to moderate psoriasis and potentially for other immune-mediated diseases.

Key words: XP-828L, Dermylex, mild to moderate psoriasis, cytokines, natural health product, T lymphocyte, autoimmune diseases.

Résumé : Les produits de santé naturels (PSN) ou la médecine douce (MD) sont couramment utilisés pour prévenir les dysfonctionnements ou en complément des traitements conventionnels de nombreuses maladies. XP-828L, un extrait de protéine lactosérique, a démontré des avantages cliniques pour le traitement du psoriasis léger à modéré. La présente étude a eu pour objectif d’analyser plus en détail les données cliniques qui ont démontré les avantages cliniques et l’innocuité de XP-828L chez le patient atteint de psoriasis ainsi que le mécanisme d’action potentiel de ce produit in vitro. L’administration orale (2,5 g, 2 fois par jour, durant 112 jours) de XP-828L à 42 sujets humains souffrant de psoriasis léger à modéré a amélioré le score de l’échelle d’évaluation globale du médecin (Physicians’ Global Assessment ; PGA). Aucune modification significative des paramètres hémato logicallyques, hépatiques et rénaux n’a été observée au cours de l’étude, ce qui démontre l’innocuité du produit. Les expériences in vitro ont montré que XP-828L a diminué la prolifération des splé-nocytes murins stimulés par Con-A ainsi que leur production d’IL-2 et d’IFN-γ. Bien que son mécanisme d’action in vivo demeure inconnu, XP-828L représente un PSN qui pourrait être utilisé comme traitement substitutif ou concomitant du psoriasis léger à modéré et d’autres maladies immunitaires.

Mots-clés : XP-828L, Dermylex, psoriasis léger à modéré, cytokines, produits de santé naturels, lymphocytes T, maladies auto-immunes.

Introduction

An autoimmune disease can be defined as a chronic, inflammatory disease characterized by the emergence of autoreactive T helper (Th) cells and the production of antibodies that react with autologous tissue (Del Prete 1992). Currently, Th1 and Th2 cells are invoked to rationalize many of the known patterns of immune response (Mosmann and Subash 1996; Lappin and Campbell 2000). Th1 cells and the pathway they govern are heavily reliant on interferon-gamma (IFN-γ) and interleukin-2 (IL-2), whereas Th2 cells rely more on IL-4 and IL-10. Over-reactivity of Th1 pathway can generate organ-specific autoimmune diseases, whereas the immune deviation towards Th2 pathway underlies allergies and related IgE-based diseases or predisposed to sys-
Psoriasis, a Th1-related disease, affects 1% to 3% of the population worldwide, with 1 million people afflicted in Canada alone (Langley et al. 2005). Although psoriasis is one of the most common chronic inflammatory disorders, its cause remains unknown. However, several lines of evidence suggest that the altered local and systemic regulation of cytokines underlies the pathogenesis of this autoimmune disease (Chamian and Krueger 2004; Bowcock and Krueger 2005; Kormeili et al. 2004). Specifically, Th1 cytokine disregulation may explain, at least in part, the complex tissue alterations described in psoriasis (Gaspari 2006). In fact, many proinflammatory cytokines such as IL-1α, IL-2, IL-6, IL-8, IFN-γ, tumour necrosis factor-α (TNF-α), as well as transforming growth factor (TGF)-α and -β and granulocyte/macrophage colony-stimulating factor are related to psoriasis (Austin et al. 1999). Therapeutic strategies targeting cytokines have been promising (Numerof and Asadullah 2006), but still today, there is no efficient cure for psoriasis.

Complex whey protein products have been shown to have some potential for applications in the treatment of cancer, hepatitis B, human immunodeficiency virus (HIV), cardiovascular diseases, and osteoporosis (Marshall 2004). XP-828L, recently commercialized as Dermylex, is a patented new oral dietary ingredient made of a protein extract isolated from bovine sweet whey. The bioactive profile of XP-828L has been related to the presence of bioactive whey proteins and (or) peptides (β-lactoglobulin, α-lactalbumin, lactoferrin, glycomacropeptide, immunoglobulins G) in the extract and to growth factors (predominantly TGF-β2). Preliminary clinical data in an open-label study (Poulin et al. 2005) showed the safety and efficacy of XP-828L in patients with mild to moderate psoriasis.

A randomized, double-blind, placebo-controlled study recently confirmed the efficacy of XP-828L in the treatment of mild to moderate psoriasis (Poulin et al. 2006). In this study, patients receiving 2.5 g of oral XP-828L twice daily for 112 days had an improved physician’s global assessment (PGA) score compared with patients under placebo ($p < 0.05$). This study thus confirmed the efficacy of this natural health product (NHP) against a placebo and positioned XP-828L as an interesting alternative or concomitant treatment for mild to moderate psoriasis.

The aim of the present paper was to review detailed complementary data specific for the cohort of 42 psoriasis patients who received XP-828L (5 g/day, 112 days) and to present in vitro data on the effects of XP-828L on spleen cells from normal mice.

**Materials and methods**

**XP-828L preparation**

XP-828L was produced from a whey protein isolate by acid precipitation according to the patented process described by Maubois et al. (2001). XP-828L is a whitish powder with an odourless to slightly milky odour manufactured from a commercial whey protein isolate obtained from cow’s milk (Armor Proteines, Elle et Vire, Condé sur Vire, France). XP-828L is a whey protein isolate rich in growth factors, mainly TGF-β2 and IGF at concentrations of 11.5 μg/g of powder and 0.15 μg/g of powder, respectively, and is therefore a source of bioactive proteins including β-lactoglobulin (50%–60%), α-lactalbumin (approximately 10%), lactoferrin (2%–3%), and immunoglobulins (3%–5%).

**Clinical study**

The complete details of the experimental procedure followed have been reported previously (Poulin et al. 2006). Briefly, adult women ($n = 11$) and men ($n = 31$) aged between 19 and 78 years with a clinical diagnosis of stable psoriasis involving ≥4% of body surface were selected. Key exclusion criteria included pustular, erythrodermic, or palmoplantar psoriasis or active psoriatic arthritis, pregnancy, skin diseases that could interfere with the evaluation of psoriasis, lactose intolerance and (or) milk protein allergies, high creatinine level, systolic arterial pressure $>140$ mmHg, diastolic arterial pressure $>90$ mmHg, or a heart rate $>100$/min. Treatment with the following was prohibited: any systemic agent (including psoralen with ultraviolet A) within 28 days prior to the study and topical treatments including UVB phototherapy for at least 14 days before the study. Patients were recruited by the Centre de Recherche Dermatologique du Québec Métropolitain (CRDQM) in Quebec City and Innovaderm Research in Montreal, and the study was conducted by 2 independent Canadian dermatologists. The study was approved by both independent ethics committees (Ethica Clinical Research Inc., Montreal, Que.) and Health Canada, and written informed consent was obtained from each patient before initiating any study procedure.

Patients received 2.5 g twice daily of XP-828L for 112 days. XP-828L was presented in pouches of powder to reconstitute in water, milk, or juice. Efficacy was based on 4 different assessment tools: PGA, body surface area (BSA), psoriasis area severity index (PASI), and itch severity. PGA evaluates the overall lesion severity comprising 7 categories ranging from clear (category 0) to severe (category 7) based on plaque elevation, scaling, and erythema (Poulin et al. 2005). PASI is a physician-assessed outcome based on the extent of involved skin surface and severity of erythema, desquamation, and plaque induration with a score ranging from 0 to 72 (Poulin et al. 2005). BSA measures the percentage of body surface area covered with psoriasis, which is categorized in 7 ranges (0%, 1%–3%, 4%–9%, 10%–20%, 21%–29%, 30%–50%, and 51%–100%). Itch severity was divided into 3 categories (0–3), the higher score considered as bothersome with difficulty to perform daily activities and causing sleep disturbances. All the efficacy assessment parameters were used at day 1 (baseline), day 56, and day 112, and the analyses were also conducted according to sex and age. Blood and urine samples were collected before the study and at days 56 and 112 and analyzed by a central laboratory (Laboratoire Biron, Brossard, Que.) for haematology and renal and hepatic functions.

**In vitro experiments**

**Proliferation assay of murine splenocytes**

Female BALB/c mice (6–8 weeks old) were obtained from Charles River (St. Constant, Que.). Mice were killed by CO$_2$ inhalation, and single-cell suspensions were pre-
Table 1. Efficacy of the XP-828L (Dermylex) in 42 patients at days 1, 56, and 112, as evaluated by four assessment tools.

<table>
<thead>
<tr>
<th></th>
<th>PASI</th>
<th>PGA</th>
<th>BSA</th>
<th>Itch severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>8.8±3.9</td>
<td>3.0±0.4</td>
<td>9.07±4.32</td>
<td>1.6±0.9</td>
</tr>
<tr>
<td>Day 56</td>
<td>8.3±4.3*</td>
<td>2.8±0.6*</td>
<td>8.65±4.78</td>
<td>1.3±0.9</td>
</tr>
<tr>
<td>Δ Abs</td>
<td>-0.5±1.8</td>
<td>-0.3±0.6*</td>
<td>-0.5±1.7</td>
<td>-0.2±0.9</td>
</tr>
<tr>
<td>Δ %</td>
<td>-5.8±23.9</td>
<td>-8.8±17.2*</td>
<td>-5.9±17.3*</td>
<td>-5.1±63.8</td>
</tr>
<tr>
<td>Day 112</td>
<td>8.3±4.4</td>
<td>2.8±0.7</td>
<td>8.66±5.53</td>
<td>1.3±0.9*</td>
</tr>
<tr>
<td>Δ Abs</td>
<td>-0.5±2.5</td>
<td>-0.3±0.5*</td>
<td>-0.4±3.5</td>
<td>-0.3±0.8*</td>
</tr>
<tr>
<td>Δ %</td>
<td>-4.9±32.0</td>
<td>-8.7±18.4*</td>
<td>-6.7±33.2</td>
<td>-12.0±55.9</td>
</tr>
</tbody>
</table>

Note: PASI, psoriasis area and severity index (0–72); PGA, physician’s global assessment (0–7); BSA, body surface area (% affected); itch severity, (0–3); Δ Abs, absolute variation from day 1; Δ %, percentage variation. Data are means ± SD of 42 human subjects. Statistically significant at *p < 0.05 vs. day 1.

pared individually from murine spleen under aseptic conditions. Briefly, spleens were removed and placed individually in RPMI-1640 cell culture medium (Wisent, St-Bruno, Que.) containing L-glutamine (2 mmol·L⁻¹), 10% foetal calf serum (FCS, Wisent), mercaptoethanol (50 μmol·L⁻¹, Sigma-Aldrich, St. Louis, Mo.) and penicillin/streptomycin (100 μg·mL⁻¹, Wisent). The spleens were shredded into small pieces and pressed through a 70-micrometre cell strainer (BD Falcon, Bedford, Mass.) under aseptic conditions. Extracted cells were then suspended in complete RPMI and centrifuged (135 g for 10 min) at room temperature. Erythrocytes were removed from the pellets by osmotic shock using 0.87% NH₄Cl (Sigma-Aldrich) for 2 min at 37 °C. Spleen cells were washed 3 times at 4 °C with complete RPMI, and mononuclear cells were counted using a Malassez chamber and 0.4% trypan blue (Cellgro, Mediatech, Washington, DC). Cell suspension was then adjusted to 1.25 × 10⁶ cells·mL⁻¹ in RPMI medium (FBS 10%). Murine splenocytes suspension (100 μL) was added wells of 96-well round-bottomed microwells containing 50 μL of RPMI medium, BSA (1–1000 μg·mL⁻¹) or XP-828L (1–1000 μg·mL⁻¹) solutions prepared in the same medium. All the samples were triplicated and incubated in the presence of concanavalin A (ConA) (1.25 μg·mL⁻¹) for 72 h. Cell proliferation was evaluated from the reduction of the fluorescent Alamar blue (BioSource, Camarillo, Calif.), which was added into the wells (20 μL) for the last 24 h of incubation. Data were expressed as percentage of stimulation index (SI) from control value (cells + ConA).

Cytokine assays
Analyses of cytokines were performed in cell supernatants collected after 72 h of incubation according to the conditions previously described but without Alamar blue. IL-2 and IFN-γ levels were measured by ELISA using commercial kits (IL-2 from Cytosets, BioSource, Montreal, Que., and IFN-γ from Endogen, Pierce Biotechnologies, Rockford, Ill.) according to the manufacturer’s instructions. Assays were run in 7 replicates (3 wells per sample) and the limits of detection for IL-2 and IFN-γ were 15.6–1000 and 7.8–500 pg·mL⁻¹, respectively. Data were expressed as percentage concentration from control value (cells + ConA).

Statistical analysis
Statistical analysis for the clinical study were executed by JSS Medical Research (Westmount, Que.), an independent contract research organization. For the clinical study, continuous endpoint variables were analyzed using analysis of variance (ANOVA) or analysis of covariance (ANCOVA) controlling for baseline values. Score changes over time were analyzed using two-tailed Student’s t tests. Categorical endpoints were analyzed by using χ² tests, and safety parameters were reported. A regression analysis was performed to examine possible relationship between study endpoints with sex and age. All statistical analyses were performed on the intent-to-treat population (completers with ≥80% compliance). In all cases, p < 0.05 was considered statistically significant. Data were analyzed by the procedure of mixed model analysis for repeated measurements in SAS (version 8.2, Cary, NC) plus StatView 5.0.1 (SAS Institute) and Systat 11.0. Data from spleen cell proliferation and cytokine production were treated by analysis of variance (ANOVA). Significance (p < 0.05) was determined by comparing samples to BSA control by using an unpaired Student’s t test.

Results
Efficacy of XP-828L on psoriasis
Intra-gruppe analyses on efficacy parameters are shown in Table 1. The most significant improvement in patients treated with XP-828L, as seen in PGA scores, which decreased significantly by 0.3 ± 0.6 units (8.8% ± 17.2%, p < 0.05) from day 1 to day 56. This improvement was maintained at day 112 (0.3 ± 0.5 units or 8.7% ± 18.4%, p < 0.05). Additional analyses showed that few significant interaction effects were detected in PGA scores in age and sex. However, patients over 50 years old reported a higher PGA score than did younger patients at day 1 and day 112 (p < 0.05) (data not shown).

BSA scores also improved in patients treated with XP-828L (Table 1). From day 1, BSA score improved by 0.5 ± 1.7 units (5.9% ± 17.3%, p < 0.05) at day 56. The improvement was maintained at day 112. Significant differences in BSA score between sexes (data not shown) were detected for day 1 (p = 0.006), day 56 (p = 0.0016), and day 112 (p = 0.017), with men having a higher BSA score on average. Ten patients (24%) improved their BSA score by 25% or higher from their initial score and maintained this improvement with XP-828L treatment. No significant differences were observed with age concerning the patients treated with XP-828L (data not shown).

PASI score improved from day 1 to day 56 (p < 0.05). Eleven patients (26%) improved their PASI score by 25% or higher (for an average improved of 49%) from initial score and maintained this improvement under XP-828L. On an individual basis, 5 patients out of 42 (11.9%) improved their PASI score by ≥40% in 56 days, whereas an additional 3 patients, for a total of 8 out of 42 (19%), improved their PASI score by ≥40% during the entire study. PASI 50 was attained in 4 patients at day 56 and 6 patients at day 112. For BSA, men reported a higher PASI score (data not shown) compared with women at each visit (day 1, p = 0.009; day 56, p = 0.020; day 112, p = 0.022). Itching sensation decreased significantly at day 112 for patients taking XP-828L (p < 0.05) compared with day 1.

Relative improvements of the study endpoints are illu-
Three patients improved their BSA score by 25% at day 56 and 6 at day 112, whereas no deterioration was seen at day 56 and only 1 at day 112. PGA also was improved in 9 and 12 patients at days 56 and 112, respectively, whereas only 2 patients showed deterioration at day 112, compared with baseline. Figure 2 shows representative pictures of body lesions during study for a patient treated with XP-828L at day 1, day 56, and day 112. XP 828L significantly improved all study endpoints (except for 3 patients) and maintained this improvement or had no negative impact on the disease.

**Safety of XP-828L**

Blood and urine test results are summarized in Table 2. From day 1 to day 56 and day 112, no significant change was recorded in blood parameters for patients under XP-828L at 2.5 g twice a day. Also, creatinine, total bilirubin, aspartate transaminase (AST), and alanine transaminase (ALT) concentrations did not vary through the study period (Table 2). Among the nonserious adverse events that were attributed to the XP-828L, the most frequently reported was blood creatinine increase for 2 patients. There was 1 unrelated serious adverse event reported during the course of the study.

**Splenocytes proliferation and cytokines production**

The effect of increasing concentrations of XP-828L (1–1000 µg/mL) on the proliferation of ConA-stimulated murine splenocytes are presented in Fig. 3. At doses of 100 and 1000 µg/mL, cell proliferation decreased by 29% and 49%, respectively ($p < 0.05$), compared with ConA-stimulated cells in the absence of XP-828L. At lower doses, no inhibitory effect of XP-828L was observed. BSA, used as a protein control, had no effect on murine splenocyte proliferation (data not shown).

IL-2 (Fig. 4A) and IFN-γ (Fig. 4B) accumulation in cell supernatants of ConA-stimulated splenocytes dose-dependently decreased in the presence of XP-828L. The secretion of IL-2 was reduced by 55% and 63% with 100 and 1000 µg/mL of XP-828L, compared with stimulated cells in the absence of XP-828L, respectively. Concomitantly, the secretion of IFN-γ was decreased by 65% and 93% with 100 and 1000 µg/mL of XP-828L, respectively, compared with ConA-stimulated cells without the presence of XP-828L. The suppressive effect of XP-828L on cell proliferation and cytokine secretion was independent of cytotoxicity since cell viability was not affected by the presence of XP-828L at a concentration up to 1000 µg/mL (data not shown).

**Discussion**

The present clinical study confirms the potential of XP-828L for the treatment of mild to moderate psoriasis. Principally, in this study, the PGA score was significantly improved (Table 1 and Fig. 1) with the oral administration of XP-828L for 56 days. More importantly, the patients maintained their improvement throughout the entire study period of 112 days and no side effects were reported. Also, for the great majority of patients taking XP-828L, a strong tendency of improvement was observed regarding PASI and BSA scores. In addition, the present study clearly showed that XP-828L is safe since no statistical significant alteration
was found in any of the haematology data (Table 2). Also, hepatic and renal functions were not affected by the 112 days of treatment with XP-828L. Therefore, taking into account the specific role of NHPs in the treatment of psoriasis, the risk–benefit ratio of XP-828L shows that it could potentially be a good complement to traditional therapies for mild to moderate psoriasis.

The mechanism of action of XP-828L, a whey-based extract, remains unclear. However, XP-828L contains a number of active compounds that can globally or individually modulate the activity of immune cells. For example, Cross and Gill (1999) have demonstrated an inhibitory effect of a modified bovine whey protein concentrate on ConA-stimulated cell proliferation. XP-828L is also a whey protein-based product containing \(\beta\)-lactoglobulin (\(\beta\)-Lg) and \(\alpha\)-lactalbumin (\(\alpha\)-La), which represent 55%–65% and 15%–
25% of total protein contained in whey, respectively. β-Lg was shown to stimulate murine spleen cells proliferation (Wong et al. 1997) and α-La was reported to increase IL-1α production by macrophage (Wong et al. 1997), whereas its peptides were demonstrated to stimulate the oxidative burst response (Gattegno et al. 1988). α-La was also shown to modulate B and T-lymphocytes activities (Bounous and Kongshavn 1985) and to stimulate adherence and phagocytosis of macrophages (Gattegno et al. 1988; Jaziri et al. 1992). Other minor proteins have also been associated with immune modulating properties of whey. For example, lactoferrin (Lf), a powerful antioxidant and antimicrobial agent (Legrand et al. 2006), has been demonstrated to decrease TNF-α, IL-1α, and IFN-γ production by immune cells (Wong et al. 1997; Machnicki et al. 1993; Hayashida et al. 2004; Kimber et al. 2002) while increasing IL-10 production (Machnicki et al. 1993). Lf is also known to reduce T cells proliferation in ConA-stimulated lymphocytes (Miyauchi et al. 1997). XP-828L also contains growth factors, mainly TGF-β2, a multifunctional cytokine which is known to regulate T-cell growth and function (Massague and Wotton 2000; Wahl and Chen 2005). Specifically, it has been demonstrated that TGF-β2 inhibits IL-2 production, upregulates cell-cycle inhibitors, and has a potent antiproliferative effect on CD4+ T cells (Gorelik and Flavell 2002). Also, TGF-β2 is able to induce Foxp3 expression in CD4+CD25− T cells and promotes the acquisition of regulatory properties in these cells (Fantini et al. 2004). In the present study, XP-828L has been shown to decrease in vitro production of IL-2 and IFN-γ proinflammatory cytokines. IFN-γ and IL-2 are largely secreted by immune cells of psoriasis patients when stimulated with a mitogenic agent (Austin et al. 1999) and are directly related to disease severity.

Oral administration of XP-828L leads to its exposition to enzymatic hydrolysis that could modify its functional properties seen in vitro. Gauthier et al. (2006) have reviewed the effect of digestion or in vitro enzymatic hydrolysis of whey proteins. Following enzymatic hydrolysis, the proliferative properties of β-Lg were greatly reduced (Mercier et al. 2004), whereas 2 synthetic peptides corresponding with the sequences f50–51 and f18–20 of α-Lac enhanced both the in vitro proliferation and protein synthesis of ConA-stimulated human peripheral blood lymphocytes (Kayser and Meisel 1996). Miyauchi et al. (1997) showed that a peptic hydrolysis of Lf promotes cell proliferation of murine splenocytes. Oral administration of whey proteins have been shown to enhance formation of specific antibodies (Bounous et al. 1988) and increase the proliferation of non-stimulating (mitogens) splenocytes (Mercier et al. 2004). However, as demonstrated by Penttila et al. (2001), whey can also be an immunosuppressive agent in some circumstances. As suggested by the latter group, when taken orally, whey protein can downregulate the activation of spleen cells and, as suggested, the increase in TGF-β production after whey treatment may explain this regulation. Furthermore, oral administration of TGF-β2 at high dose has been shown to modulate a food allergy-related reaction, at least in part, through its systemic activity (Okamoto et al. 2005). Finally, protein complexes derived from whey have been shown to have clinically proven health benefits in cancer, hepatitis, HIV, cardiovascular disease, and osteoporosis (Marshall 2004) through different pathways.

Together, these data support the view that XP-828L, because of its complex protein mixture of some of its compo-
ments, has the potential to modulate immune cells activity not only in vitro but also in vivo. Our own observations of the suppressive effects of XP-828L on murine splenocytes strongly support the view that it has an immunomodulatory potential and from the available data and literature available today, TGF-β2 could be responsible or may play a major role.

The choice of drug treatment for an individual patient is a complex matter. The actual challenge in the treatment of psoriasis is to find a strategy dealing with the benefits and side effects of the treatments available today. The treatment strategy is usually based on individual responses to a specific or a combination of active ingredients. However, patients and dermatologists often have discordant views about the values placed on the risks and benefits of different treatment options and health states since no significant relation, at some instance, is found between disease severity or disease area and quality of life for patient with psoriasis. Psoriasis lesions located on visible body parts are significantly correlated with aspects of quality of life (Heydendael et al. 2004). In general, therapies with the fewest side effects are preferred by these patients (Linden and Weinstein 1999).

Data on patient’s satisfactory level with current therapies are still contradictory. A recent survey showed that 42% of patients receiving traditional systemic treatments were not satisfied with these therapies (Christophers et al. 2006). Inadequate responses reported by patients as no change or even worsening of disease with treatment from 10% to 50%. Usually, nonbiologic therapies have a very high degree of dissatisfaction from the patients (Nijsten et al. 2005; Finlay and Ortonne 2004) and the inconvenience and safety of traditional therapies become an issue for the patients. On the other hand, cyclosporine, methotrexate, and acitretin were qualified as highly effective in another survey (Strober et al. 2006). This discrepancy between these data may reflect a need for long-term, prospective, comparative studies of more heterogeneous populations that include patients’ assessment. Although the introduction of biologic treatments leads to the improvement of the health-related quality of life of patients, these treatments are generally reserved for patients with severe psoriasis, owing mainly to their high cost and safety issues. Thus, still today there is an unmet demand for an efficient and safe treatment for psoriasis. The clinical evidences reported from recent clinical trials with XP-828L in mild to moderate psoriasis (Poulin et al. 2005, 2006) indicate that this new product will potentially meet patient’s expectations.

The current use of NHPs (or complementary and alternative medicine (CAM)) for psoriasis has been examined (Ben-Arye et al. 2003). Only a few NHPs or CAM with clinically proven health benefits have been proposed in the treatment of psoriasis when taken orally. In fact, some studies reported the potential of fish oil for the treatment of psoriasis. Gupta et al. (1989) showed that oral administration of fish oil (omega-3), in addition to phototherapy (UVB), resulted in statistically greater improvement of total body surface area compared with placebo with UVB. However, when used alone (Veale et al. 1994; Soyland et al. 1993; Bjorneboe et al. 1989) or with topical corticosteroids (Gupta et al. 1990), the efficacy of fish oil for psoriasis was not confirmed. Available data on the use of fish oil for psoriasis treatment thus remains inconsistent. There is growing evidence of extensive NHPs or CAM use among patients with psoriasis. Most patients use NHPs or CAM as a complementary treatment, rather than an alternative to conventional treatment. Taken in conjunction, the reason for use of NHP or CAM in psoriasis patients may suggest patients need for an overall treatment perspective emphasizing palliation and quality of life rather than a focus on disease eradication.

In conclusion, oral administration of XP-828L at a dose of 2.5 g twice daily for 56 days reduced PGA score compared with day 1 and the improvement was maintained for the 112 days of the study. The other 3 assessment tools also showed consistent improvement in psoriasis symptoms with use of XP-828L. Furthermore, XP-828L is safe and well tolerated by patients with mild to moderate stable psoriasis. Data available today suggest that XP-828L could moderate the inflammatory cascade seen in psoriasis through its systemic action on immune cells, mainly on T lymphocytes. If confirmed, the proposed mechanism of action of XP-828L could also suggest a potential for the product to modulate in a beneficial way the immune system for the treatment or prevention of other immune-related diseases or other diseases related to an uncontrolled immune response.

Acknowledgements
The authors thank Geneviève Labbé, Annabelle Moreau, and Frederic Lehanche for their technical assistance.

References


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