2021 Patent Infringement Risk Search - Chemistry
Sample Answer

[This document exemplifies how to interpret the search request, the preparation and gathering keywords and patent classes and conducting a sample search including comments of how and why using search statements.]

A client wishes to launch a new women's health supplement in Germany, Netherlands, Austria, Canada, USA, Japan and China. The launch is planned for June 2021.

Component	(in mg unless otherwise indicated)
Linoleic Acid	10
Linolenic Acid	10
Docosahexaenoic Acid	10
Vitamin C	25
Vitamin E	10 (I.U.)
Vitamin A	2700 (I.U.)
Vitamin D_3	400 (I.U.)
Vitamin B_6	20
Iron	90
Calcium	2500
Microcrystalline Cellulose	200
Starch	200
Silicon Dioxide	3
Magnesium Stearate	10

For definitions of I.U see http://en.wikipedia.org/wiki/International_unit

The marketing claims will include:
for use by women prior to and during lactation (breast feeding mums); nutritional supplement; daily source of your omega-3 fatty acids.

You are instructed to carry out a patent infringement search for the 3 unsaturated fatty acids in the tabulated formulation
****

This is a freedom to operate / clearance search. The objective of these FTO searches is to help minimise the risk of infringement of any third party prior art. In all such searches it is always a balancing act between the amount of effort required to conduct specific searches vs. the likely hood of that search retrieving potentially relevant documents. The question I always ask is "Is it reasonable for me to do this search?".

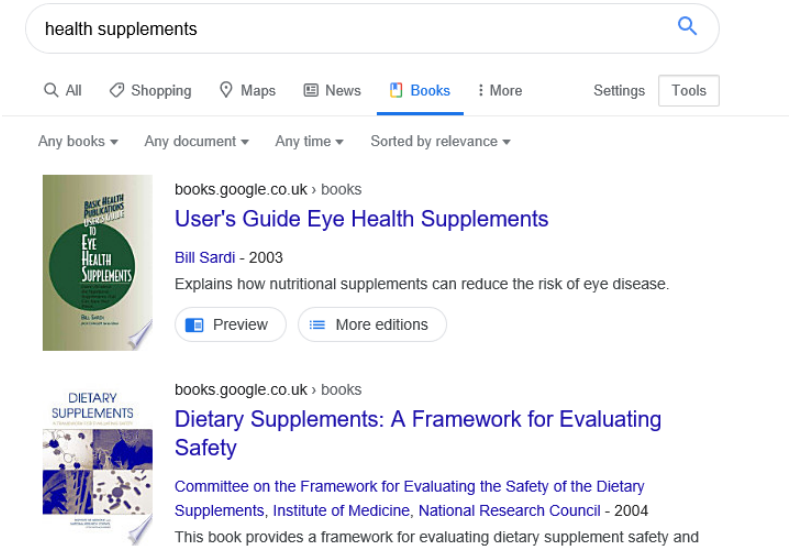
The answer is likely to depend on the potential harm to the business (the bigger the brand the higher the loss) and the amount of competitor activity as well as the time each search is expected to take.

As this is a FTO search the results can be limited to patent literature. The results should also be date restricted to only include documents that could still potentially be live/in force. For most searching this means limiting to patent families whose earliest priority date is 21 years before the planned launch/reformulation date. In most countries patents have a maximum lifetime of 20 years from the filing date, an extra year is added to allow for the 12 month filing period after the 1st priority document under the Paris Convention. In some business areas (e.g. pharma) it is possible to apply for a supplementary protection certificate (SPC) to extend the lifetime of the patent beyond its normal expiry date. I believe this can extend the life of a patent by up to 5 years but I have no practical experience of SPCs in my work. I have assumed that SPCs could not be obtained for health supplements.
This means that I will limit my searches to patent families with an earliest priority date of June 2000.

I will also my searching to patent families including PCT applications, EP filings and national filings in Germany, Netherlands, Austria, Canada, USA, Japan and China.

I am unfamiliar with the area of health supplements so my first task is it find some general information for this market – which will help me select suitable search terms to describe this type of product.
Searching Google for "health supplements" gave me the following link:
http://www.hsis.org/ to the Health Supplements Information Service
This suggests the following combinations of Term A with Term B:
A: Health, food, vitamin, nutrition, nutritional
B: supplement(s), supplementation

The same simple search in Google Books adds the following term:
Dietary supplement



Repeating in Patbase – limiting to the specific phrase in the Title, Abstract and Claims:

#	Search query	Results
1	tac=(health supplement)	671

And browsing the results for useful codes (IPC, US, CPC or JP F-terms) and any further terms.
TAC= search Title, Abstract and Claims
By putting the 2 terms as a phrase with system will search for this exact character string – although it should retrieve health-supplement or health/supplement.

The 1st result immediately raises a question I would need to ask my requesting attorney – is the product a solid or liquid?

Other terms: Diet
Possible Codes:
IPC

A23L1/29: **.** Modifying nutritive qualities of foods; Dietetic products
A23L1/30: **. .** containing additives
A23L1/302: **. . .** Vitamins
A23L1/303: **. . . .** Vitamins A or D

A23L33/00: Modifying Nutritive Qualities Of Foods; Dietetic Products; Preparation Or Treatment Thereof
A23L33/10: **. .** containing additives
A23L33/15: **. . .** Vitamins
A23L33/155: **. . . .** Vitamins A or D

CPC

A23L33/00: **.** Modifying nutritive qualities of foods; Dietetic products; Preparation Or Treatment Thereof
A23L33/10: . Using Additives (A23L33/21 Takes Precedence)
A23L33/115: **. .** Fatty Acids Or Derivatives Thereof; Fats Or Oils
A23L33/12 . . . Fatty Acids Or Derivatives Thereof
A23L33/15: **. .** Vitamins
A23L33/155: **. . .** Vitamins A or D

There are also broad codes for fatty acids – I would also want to discuss with my attorney if I should include this broader classification when searching for the 3 specific acids [I have assumed that this will retrieve too many irrelevant hits and so will not include in my strategy].

F-Terms

4B018/ME02: **.** Purpose/application - Nutrition and robustness

4B018/MD00: Nutrition improving substance/fungi
4B018/MD07: **.** Organic compound
4B018/MD11: **. . .** Including docosahexaenoic acid
4B018/MD13: **. . .** Including linolenic acid
4B018/MD23: **. .** Vitamin
4B018/MD24: **. . .** Vitamin A
4B018/MD25: **. . .** Vitamin C
4B018/MD26: **. . .** Vitamin E

A quick check (as time limited) found no suitable US codes so I searched for the following:

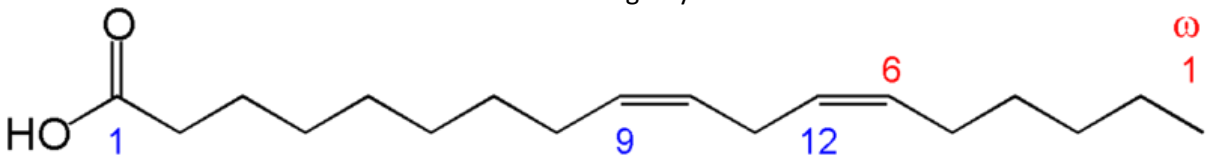
2 ti=((health or food or diet* or nutrition*) w1 supplement*) and cc=us 1107

This retrieves patent families with a US publication (CC – published country) and the Title containing health etc within 1 word (next to) supplement...
The * character is a truncation symbol which will retrieve any terms beginning with “supplement” – allowing for any number of extra characters but also including no extra characters.
Selecting more / Class Analysis/ US Class with Subclasses found:
. 426/648 - Food Or Edible Material: Processes, Compositions, And Products; Nutritional Or Dietetic Supplement, Including Table Salt

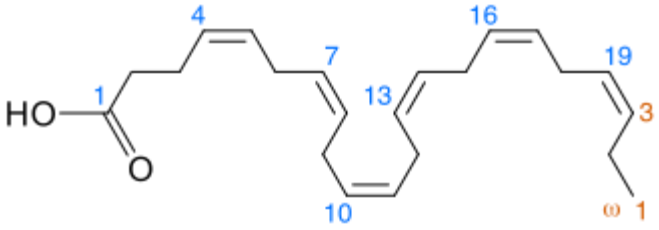
The proposed marketing claims suggest several other terms that might be used to describe the product:
Breast feeding + supplement
Pregant/Pregancy + supplement

Describing the specific acids

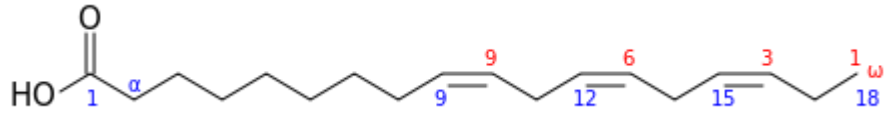
I looked up Linoleic Acid in google – giving me the wiki entry:
http://en.wikipedia.org/wiki/Linoleic_acid
This acid is an omega-6 fatty acid with 2 cis double bonds having the IUPAC name (9*Z*,12*Z*)-9,12-Octadecadienoic acid and the Chemical Abstracts Registry Number 60-33-3



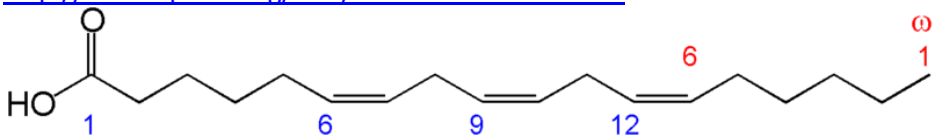
Docosahexaenoic Acid
http://en.wikipedia.org/wiki/Docosahexaenoic_acid
Is an omega-3 fatty acid known as *all-cis*-docosa-4,7,10,13,16,19-hexa-enoic acid, cervonic acid, or DHA with CA REG 6217-54-5



Linolenic Acid is actually a mixture of 2 all-cis triene (3 double bonds) fatty acids
http://en.wikipedia.org/wiki/Linolenic_acid
all-cis-9,12,15-octadecatrienoic acid with CA REG 463-40-1 an omega-3 fatty acid
http://en.wikipedia.org/wiki/Alpha-Linolenic_acid;



and
all-*cis*-6,9,12-octadecatrienoic acid also known as gamolenic acid with CA REG 506-26-3 an omega-6 fatty acid
http://en.wikipedia.org/wiki/Gamma-Linolenic_acid



For a real request I would check with my patent attorney which of these compounds I should include in my search. In this instance the question would indicate that the principal interest is in the alpha-linolenic acid since this is an omega-3 material. However since linoleic is an omega-6 fatty acid I will search for the gamma-linolenic acid as well.

It is probably not sensible to search for fatty acid in general as a broader term covering these 3 acids – although I may check online to confirm. Alternative broader terms could be:
Omega-6 fatty acid, Omega-3 fatty acid, polyunsaturated fatty acids

I will need to check the number of hits for unsaturated fatty acids as this phrase will retrieve large numbers of materials that are not relevant (especially mono-unsaturated species such as oleic acid).

Online strategy using STN

Proposal
1) In Registry file check if there is a 3rd Registry Number for Linolenic Acid where the positions of the double bonds are unspecified.
2) Separately select the RNs for the fatty acids and check for any other useful non-systematic names using the SELECT NAME feature
3) It might be tempting to consider substructure or Marpat searches for these acids. However the specific acids should be retrieved by the known RNs in Chemical Abstracts and personal experience of searching for fatty acids (in other fields) suggests that the generic structures in Marpat would retrieve a vast amount of non-relevant references.

I will keep the terms for each fatty acid separate (although all the Linolenic Acids will be combined) so that these can be searched in combination with the product concept in Chemical Abstracts:
Concept A = Linoleic acid
Concept B = Docosahexaenoic Acid
Concept C = Linolenic Acid
Concept D = Product
So my search will consist of:
(Concept A OR Concept B OR Concept C) combined with Concept D
Although the FTO request is for a composition including all three acids any document that covers suitable health supplements containing just one of these acids must be considered as the claims may still cover the proposed product. This is why it is important to combine the acid CONCEPTS with OR operators and to never use the AND operator.
(If the use of these acids in health supplements was well established before 2000 the search strategy should be modified to combine at least 2 acids – giving 3 variations [A+B; A+C; B+C]). I would discuss this with my attorney – and if necessary carry out quick searches of the prior art before June 2000.

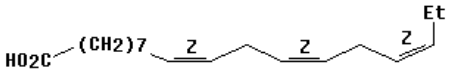
I am searching STN the session is displayed in black and my explanations are in red. I have saved the full search session as a transcript file.

**********START OF SEARCH**********

```
=> file reg
```
The FILE command selects a new database – in this case the Chemical Abstracts Registry File
```
FILE 'REGISTRY' ENTERED AT 14:20:38 ON 15 SEP 2020

=> e linolenic acid/cn
```
The EXPAND command (e) is used to display part of the specified field. I have selected the CN field to view the full chemical names (this covers both systematic and non-systematic nomenclature)
```
E1            1     LINOLENATE 2(R)-LIPOXYGENASE/CN
E2            1     LINOLENELAIDIC ACID/CN
E3            1 --> LINOLENIC ACID/CN
E4            1     LINOLENIC ACID 13-HYDROPEROXIDE/CN
E5            1     LINOLENIC ACID 2-(N,N-DIETHYLAMINO)ETHYLAMIDE/CN
E6            1     LINOLENIC ACID 9-HYDROPEROXIDE/CN
E7            1     LINOLENIC ACID AMIDE/CN
E8            1     LINOLENIC ACID AMINOMETHYLPROPANOL SALT/CN
E9            1     LINOLENIC ACID ANILIDE/CN
E10           1     LINOLENIC ACID CHLORIDE/CN
E11           1     LINOLENIC ACID DIETHANOLAMIDE/CN
E12           1     LINOLENIC ACID DIMER DILAURYL ESTER/CN
```
This tells me that there is only one indexed entry in the CN field for LINOLENIC ACID. I will select using the Search command (S) in combination with the appropriate E number in the expanded list.
```
=> s e3
L1            1 "LINOLENIC ACID"/CN

=> d rn cn str
```

The Display command (D) is used to show the results from the last result set L1. I have listed the fields I wish to display – CAS Registry Number (rn), Chemical names and Structure diagram (str)

```
L1   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2013 ACS on STN
RN   463-40-1  REGISTRY
CN   9,12,15-Octadecatrienoic acid, (9Z,12Z,15Z)-  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   (9Z,12Z,15Z)-9,12,15-Octadecatrienoic acid
CN   9,12,15-Octadecatrienoic acid, (Z,Z,Z)-
CN   Linolenic acid (8CI)
OTHER NAMES:
CN   (all-Z)-9,12,15-Octadecatrienoic acid
CN   (Z,Z,Z)-Octadeca-9,12,15-trienoic acid
CN   α-Linolenic acid
CN   18:3n-3
CN   9,12,15-all-cis-Octadecatrienoic acid
CN   9-cis,12-cis,15-cis-Octadecatrienoic acid
CN   9Z,12Z,15Z-Octadecatrienoic acid
CN   all-cis-9,12,15-Octadecatrienoic acid
CN   alpha-Linolenic acid
CN   BRD-K33396764
CN   cis,cis,cis-9,12,15-Octadecatrienoic acid
CN   cis-Δ9,12,15-Octadecatrienoic acid
CN   cis-9,cis-12,cis-15-Octadecatrienoic acid

Double bond geometry as shown.
```




```
**PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**
```

In this case the list of names is mostly systematic involving various numbers and letter schemes. In this instance it is not sensible to use the SELECT NAME command. Instead I will only search for

Linolenic acid or Octadecatrienoic acid

As well as the Registry Number.

This Expand also indicates to me that I should not expect Linolenic acid to be used for species with unspecified positions for the double bonds.

The RNs for the other 3 acids were also searched and the Chemical Names displayed:

```
=> s 506-26-3
L2           1 506-26-3
                (506-26-3/RN)

=> d rn cn

L2   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2013 ACS on STN
RN   506-26-3  REGISTRY
CN   6,9,12-Octadecatrienoic acid, (6Z,9Z,12Z)-  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   .gamma.-Linolenic acid (6CI, 7CI, 8CI)
CN   6,9,12-Octadecatrienoic acid, (Z,Z,Z)-
OTHER NAMES:
CN   (Z,Z,Z)-6,9,12-Octatrienoic acid
CN   6(Z),9(Z),12(Z)-Octadecatrienoic acid
CN   6,9,12-all-cis-Octadecatrienoic acid
CN   6-cis,9-cis,12-cis-Octadecatrienoic acid
CN   all-cis-6,9,12-Octadecatrienoic acid
CN   cis,cis,cis-6,9,12-Octadecatrienoic acid
CN   cis-6,cis-9,cis-12-Octadecatrienoic acid
CN   Gamma-linolenic acid
CN   Gamolenic acid
```

This list includes the non-systematic name Gamolenic acid which I had already identified as an additional search term

```
=> s 60-33-3
L3            1 60-33-3
                (60-33-3/RN)

=> d cn

L3   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2013 ACS on STN
CN   9,12-Octadecadienoic acid (9Z,12Z)-  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   (9Z,12Z)-9,12-Octadecadienoic acid
CN   9,12-Octadecadienoic acid (Z,Z)-
CN   Linoleic acid (8CI)
OTHER NAMES:
CN   (9Z,12Z)-Octadec-9,12-dienoic acid
CN   (Z,Z)-9,12-Octadecadienoic acid
CN   α-Linoleic acid
CN   9,12-Octadecadienoic acid, (Z,Z)-
CN   9,12-Octadecanoic acid
CN   9-cis,12-cis-Linoleic acid
CN   9Z,12Z-Linoleic acid
CN   9Z,12Z-Octadecadienoic acid
CN   all-cis-9,12-Octadecadienoic acid
CN   C18:2
CN   CA 1726
CN   cis,cis-Linoleic acid
CN   cis-Δ9,12-Octadecadienoic acid
CN   cis-9,cis-12-Octadecadienoic acid
CN   Emersol 315
CN   Extra Linoleic 90
CN   Linolic acid
CN   Polylin 515
CN   Ronacare ASC 3
CN   Unifac 6550
```

Again the SELECT NAME is not suitable for generating search terms here. Instead I used the LOG HOLD command to temporarily exit my online session and cut and paste useful terms from the transcript file. Linoleic acid, Octadecadienoic acid, Linolic acid

```
=> s 6217-54-5
L4            1 6217-54-5
                (6217-54-5/RN)

=> d cn

L4   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2013 ACS on STN
CN   4,7,10,13,16,19-Docosahexaenoic acid, (4Z,7Z,10Z,13Z,16Z,19Z)-  (CA INDEX
     NAME)
OTHER CA INDEX NAMES:
CN   (4Z,7Z,10Z,13Z,16Z,19Z)-4,7,10,13,16,19-Docosahexaenoic acid
CN   4,7,10,13,16,19-Docosahexaenoic acid, (all-Z)- (8CI)
CN   Docosahexaenoic acid (6CI)
OTHER NAMES:
CN   (4Z,7Z,10Z,13Z,16Z,19Z)-4,7,10,13,16,19-Docosahexaenoic acid
CN   (4Z,7Z,10Z,13Z,16Z,19Z)-Docosahexaenoic acid
CN   (4Z,7Z,10Z,13Z,16Z,19Z)-Docosahexenoic acid
CN   (all-Z)-4,7,10,13,16,19-Docosahexaenoic acid
CN   Δ4,7,10,13,16,19-Docosahexaenoic acid
CN   4-cis,7-cis,10-cis,13-cis,16-cis,19-cis-Docosahexaenoic acid
CN   AlgaMac 3050
CN   Algatrium
CN   Algatrium Plus
CN   all-cis-4,7,10,13,16,19-Docosahexaenoic acid
```

```
CN   all-Z-Docosahexaenoic acid
CN   AquaGrow Advantage
CN   C22:6
CN   Cervonic acid
CN   DHA
CN   DHA 22
CN   DHA 22HG
CN   DHA 46
CN   DHA 46A
CN   DHA 70
CN   DHA S 17P100
CN   DHA S Rosemary Sun
CN   DHA-46MK
CN   DHAID CL-400
CN   DHASCO
CN   DHASCO-B
CN   DHASCO-HM
CN   DHASCO-S
CN   DHASCO-T
CN   Doconexent
CN   Efalex
CN   Marinol D 50TG
CN   Martek DHA HM
CN   Martek DHA Powder KS 35
CN   Martek DHA Powder KSF 58
CN   Martek DHA-S
CN   Maxigard
CN   Monolife 50
CN   Monolife 90
CN   Ropufa 60
CN   S.Presso
```

I also choose the following terms from the transcript file:
Docosahexaenoic acid, Cervonic acid, DHA, DHASCO, Doconexent, Efalex, Maxigard

```
=> log hold
COST IN EUROS                                        SINCE FILE      TOTAL
                                                        ENTRY    SESSION
FULL ESTIMATED COST                                     31,54      31,63

 SESSION WILL BE HELD FOR 120 MINUTES
```

As indicated the LOG HOLD command allows you to leave an online session on STN for up to 2 hours. Signing back on to STN within this period returns you to this held session.

```
=> d hist
```

The D HIST command gives a full record of current session retained after LOG HOLD

```
     (FILE 'HOME' ENTERED AT 14:20:20 ON 15 SEP 2020)

     FILE 'REGISTRY' ENTERED AT 14:20:38 ON 15 SEP 2020
                E LINOLENIC ACID/CN
L1             1 S E3
L2             1 S 506-26-3
L3             1 S 60-33-3
L4             1 S 6217-54-5

=> file hcaplus
```

The FILE command used to enter a version of the Chemical Abstracts database

```
FILE 'HCAPLUS' ENTERED AT 14:33:11 ON 15 SEP 2020

=> s l1-l2
         58043 L1
         14409 L2
L5       62649 (L1 OR L2)
```

This searches for the CAS RN's of the 2 linolenic acids from the Registry database.

```
=> s Linolenic or Octadecatrienoic or Gamolenic
          51528 LINOLENIC
           2611 OCTADECATRIENOIC
             21 GAMOLENIC
L6        53531 LINOLENIC OR OCTADECATRIENOIC OR GAMOLENIC
```

Searching for 3 synonyms for the linolenic acids.

```
=> s l6()acid
        8172043 ACID
L7        49078 L6(W)ACID
```

Use of the W proximity operator to retrieve Set L6 next the term ACID in that order – () is the short hand form of (W). In this instance the addition of the term ACID reduces the size of this part of Concept A (see p5).

```
=> s l6 not l7
L8         4453 L6 NOT L7
```

Finds those records in Set L6 NOT in Set L7 i.e. where the term ACID does not directly follow the specific acid names.

```
=> d hit
```

This command displays the part of the 1st record in set L8 including the searched terms (from L6)

```
L8   ANSWER 1 OF 4453  HCAPLUS  COPYRIGHT 2020 ACS on STN
AB   Extra virgin olive oil (EVOO) is an important component of the
.....
     to cultivar. γ-Tocopherol, squalene, and the majority of fatty acids
     were the most discriminant variables, with γ-tocopherol, linoleic,
     linolenic, and gadoleic acid being present at higher levels in samples
     from the Kolovi cultivar.  Koroneiki samples were characterized with
.....
```

This is a hit

```
=> s l5-l6
L9        75115 (L5 OR L6)
```

Since it is highly likely that many of the records in set L7 also relate to the required fatty acids I have chosen to combine sets L5 and L6 to give me Concept A

```
=> s l3
L10       94538 L3

=> s Linoleic or Octadecadienoic or Linolic
          91150 LINOLEIC
          34819 OCTADECADIENOIC
           1988 LINOLIC
L11      119028 LINOLEIC OR OCTADECADIENOIC OR LINOLIC

=> s l10-l11
L12      124758 (L10 OR L11)
```

L12 = Concept B

```
=> s l4
L13       35322 L4

=> s Docosahexaenoic or Cervonic
          29521 DOCOSAHEXAENOIC
            705 CERVONIC
L14       29803 DOCOSAHEXAENOIC OR CERVONIC

=> s DHA or DHASCO or Doconexent or Efalex or Maxigard
          25356 DHA
             83 DHASCO
             18 DOCONEXENT
              4 EFALEX
              1 MAXIGARD
L15       25402 DHA OR DHASCO OR DOCONEXENT OR EFALEX OR MAXIGARD

=> s l13-l15
L16       53412 (L13 OR L14 OR L15)
```

L16 = Concept C

```
=> s omega()3 or omega()6
        327522 OMEGA
      13031045 3
         37347 OMEGA(W)3
        327522 OMEGA
       7363340 6
         17264 OMEGA(W)6
L17      40951 OMEGA(W)3 OR OMEGA(W)6
```

An alternative way to search for L17 would have been OMEGA(W)(3 OR 6) but this would have taken much longer to process since it would 1st combine records containing 3 or 6 and then find the total next to OMEGA.

```
=> s polyunsat? or poly()unsat?
         82268 POLYUNSAT?
       1280619 POLY
        414509 UNSAT?
          1432 POLY(W)UNSAT?
L18      82945 POLYUNSAT? OR POLY(W)UNSAT?
```

Searching for variants on the concept "polyunsaturated" allowing for it being a single or 2 terms separated after the poly by a space or a hypen. The ? character allows for any (or no) extra characters after the word stem. In this case this allows for POLYUNSAT, POLYUNSATD, POLYUNSATURATED etc..

```
=> s fatty()acid#
        796358 FATTY
       8950250 ACID#
L19     685014 FATTY(W)ACID#
```

The # character allows for 0 or 1 extra character after the word stem – alternatively the SET PLURALS ON command would search for ACID or ACIDS.

```
=> s l17(3w)l19
L20      30983 L17(3W)L19
```

This allows for up to 3 terms separating the terms in set L17 from the "fatty acid" terms in set L19 – L17 still has to be before L19 in the record.

```
=> s l18()l19
L21      57090 L18(W)L19

=> s l20-l21
```

Short hand for combination of sets L20 or L21

```
L22      73079 (L20 OR L21)
```

Set L22 is a broader concept that includes not only the 3 specific acids to be cleared but more generic definition of these chemicals covering other similar acids. CONCEPT E

Having now created suitable sets for the specific acids I looked more critically at the strategy for the product format – CONCEPT D.

Most of the word combinations used to describe the products include terms beginning with the word stem SUPPLEMENT.

The requirement for a FTO search is to reduce the possibility of missing potentially relevant prior art. In the light of this I will try simply combining the concepts for the acids with SUPPLEMENT alone and OR this result with alternative terms/codings that don't include this word stem.

So CONCEPT D now becomes:

SUPPLEMENT* (a truncated word stem)

BREAST FEEDING; LACTATING; PREGANT; PREGANCY (possibly combined with some term(s) describing a food product)

IPC/ECLA/CPC codes covering A23l1/29 to A23l1/303

F-Terms listed on page 3 of this document.

In practice it is only by combining these variants of CONCEPT D with the other acid concepts that I will know if this modified strategy will give an acceptable recall and relevance. (As discussed before what is acceptable will depend on the importance/potential risk of this launch).

```
=> s supplement?
```

```
L23      460510 SUPPLEMENT?
```
Simplified search for all supplements – will obviously cover records that are not food supplements included where something has been used to supplement a process – CONCEPT Da
```
=> s l9 and l23
L24        8812 L9 AND L23
```
Broadest combination of CONCEPT A with CONCEPT Da – giving higher recall but lower relevance
```
=> s (diet? or health or food or vitamin or nutrition?)()l23
       1262563 DIET?
        855778 HEALTH
       1203228 FOOD
        401336 VITAMIN
        526356 NUTRITION?
L25      116869 (DIET? OR HEALTH OR FOOD OR VITAMIN OR NUTRITION?)(W)L23
```
Specific types of supplements identified in p2 of this document. Diet/dietary/health etc terms next to terms with the stem SUPPLEMENT
```
=> s l9 and l25
L26        4500 L9 AND L25
```
More specifically associated with the correct product format but CONCEPT A not necessarily associated with these products.
```
=> d hit
```
This display command shows only the parts of a record retrieved by the (last) search – set L26. This confirms record as noise with no connection between search terms/sets.
```
L26  ANSWER 1 OF 4500  HCAPLUS  COPYRIGHT 2020 ACS on STN
AB   The study aimed to evaluate the effect of a diet contg. extruded linseed
     (Linum usitatissimum L.) on growth performances, carcass traits and meat
     quality in Nero Lucano pigs.  Sixteen male piglets were weaned at about 50
     days of age and divided into two homogeneous groups fed a control diet (C)
     or a diet contg. 3% extruded linseed (EL).  The trial lasted 32 wk and
     pigs were slaughtered at 9 mo of age.  Samples from the Longissimus dorsi
     (Ld) muscle were analyzed to assess phys. and chem. parameters and i.m.
     fatty acid compn.  Av. daily gain, feed intake and feed conversion ratio
     were not affected by the diet.  Pigs fed the C diet showed a significantly
     greater slaughter wt. in comparison to the EL group (116.50 vs 108.25 kg)
     Meat pH and chem. compn. were not influenced by the diet.  No differences
     were found for shear force (WBS) in raw meat, while cooked meat of the EL
     group showed a lower WBS value.  The EL diet significantly lowered total
     SFA and increased total PUFA, of both n-6 and n-3 series.  Among the n-6,
     significant differences between dietary treatments were found for linoleic
     acid.  As for the n-3 series, EL feeding significantly enhanced
     linolenic acid, EPA, DPA and DHA.  Feeding EL also significantly lowered
     the PUFA/SFA and n-6/n-3 ratios and the AI and TI, with benefits for human
     health.  In conclusion, dietary supplementation with 3% EL didn't
     affect growth performance while it improved the fatty acid profile of
     meat.

=> s l9(l)l23/it,ti
        126471 SUPPLEMENT?/IT
         79218 SUPPLEMENT?/TI
L27       2575 L9(L)(SUPPLEMENT?/IT,TI)
```
Limiting set L23 to terms found in either the TITLE or INDEX TERM fields. The (L) proximity operator requires the 2 search terms L9 and the limited L23 to be in the same part of a record (in Chemical Abstracts this means the same sub-field) – in this case both terms must either be in the TITLE or the same Indexing phrase (= Index heading + its descriptive phrase). Chemical Abstracts records can include multiple Index phrases which can be separately searched using the L operator.
```
=> s (diet? or health or food or vitamin or nutrition?)()l23/it,ti
       1262563 DIET?
        855778 HEALTH
       1203228 FOOD
        401336 VITAMIN
        526356 NUTRITION?
        126471 SUPPLEMENT?/IT
```

```
         79218 SUPPLEMENT?/TI
L28      81659 (DIET? OR HEALTH OR FOOD OR VITAMIN OR
NUTRITION?)(W)(SUPPLEMENT?/IT,TI)
```
Set L28 limits set L25 to the TITLE or INDEX TERM fields – this set can be reused
```
=> s l28(l)l9
L29       804 L28(L)L9
```
Sets L26, L27 and L29 are subsets of the broader search L24 – which can be used at a later point in the search to reduce the size of the search CONCEPT A in combination with CONCEPT Da.
```
=> s l12 and l23
L30      11895 L12 AND L23

=> s l12(l)l23/it,ti
        126471 SUPPLEMENT?/IT
         79218 SUPPLEMENT?/TI
L31       3269 L12(L)(SUPPLEMENT?/IT,TI)

=> s l12 and l25
L32       5552 L12 AND L25

=> s l12(l)l28
L33       1115 L12(L)L28
```
Sets L31, L32 and L33 are subsets of the broader search L30 – which can be used at a later point in the search to reduce the size of the search CONCEPT B in combination with CONCEPT Da.
```
=> s l16 and l23
L34      10897 L16 AND L23

=> s l16(l)l23/it,ti
        126471 SUPPLEMENT?/IT
         79218 SUPPLEMENT?/TI
L35       3579 L16(L)(SUPPLEMENT?/IT,TI)

=> s l16 and l25
L36       6353 L16 AND L25

=> s l16(l)l28
L37       1534 L16(L)L28
```
Sets L35, L36 and L37 are subsets of the broader search L34 – which can be used at a later point in the search to reduce the size of the search CONCEPT C in combination with CONCEPT Da.
```
=> s l22 and l23
L38      15654 L22 AND L23

=> s l22(l)l23/it,ti
        126471 SUPPLEMENT?/IT
         79218 SUPPLEMENT?/TI
L39       5301 L22(L)(SUPPLEMENT?/IT,TI)
L40       9221 L22 AND L25

=> s l22 and l25
L40       9221 L22 AND L25

=> s l22(l)l28
L41       2817 L22(L)L28

=> s l13 or l17 or l22
L42      94190 L13 OR L17 OR L22
```
Combining CONCEPTS A, B or C so that records in set L42 contain terms for at least one of these acid concepts.
```
=> s (breast()feed?) or lactating or pregnant or pregnancy
        266026 BREAST
       1430937 FEED?
          3427 BREAST(W)FEED?
         26730 LACTATING
```

```
        109265 PREGNANT
        207337 PREGNANCY
L43     265662 (BREAST(W)FEED?) OR LACTATING OR PREGNANT OR PREGNANCY
```

Others terms that might relate to the person using the product – although obviously these terms alone cover much broader topics than this – CONCEPT Db

```
=> s l42 and l43
L44       3496 L42 AND L43

=> s l42(l)l43/it,ti
        134060 BREAST/IT
        131985 BREAST/TI
        359745 FEED?/IT
        245207 FEED?/TI
          7005 LACTATING/IT
          9405 LACTATING/TI
         19829 PREGNANT/IT
         22211 PREGNANT/TI
        155538 PREGNANCY/IT
         51042 PREGNANCY/TI
L45       1486 L42(L)((BREAST/IT,TI(W)FEED?/IT,TI) OR LACTATING/IT,TI OR PREGNA
               NT/IT,TI OR PREGNANCY/IT,TI)

=> s l22 and l43
L46       2827 L22 AND L43

=> s l22(l)l43/ti,it
        131985 BREAST/TI
        134060 BREAST/IT
        245207 FEED?/TI
        359745 FEED?/IT
          9405 LACTATING/TI
          7005 LACTATING/IT
         22211 PREGNANT/TI
         19829 PREGNANT/IT
         51042 PREGNANCY/TI
        155538 PREGNANCY/IT
L47       1148 L22(L)((BREAST/TI,IT(W)FEED?/TI,IT) OR LACTATING/TI,IT OR PREGNA
               NT/TI,IT OR PREGNANCY/TI,IT)

=> d ti l47 1-5
```

This display command shows the TITLE field from the 1st (most recently added to database) five records from set L47 – "breast feeding" terms and "polyunsat fatty acid" terms both either in the TITLE field or the same INDEX TERM phrase/sub-field.

```
L47  ANSWER 1 OF 1148  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Effect of supplementary omega-3 fatty acids on pregnant women
     with complications and pregnancy outcomes: review from literature

L47  ANSWER 2 OF 1148  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Maternal diet high in Omega-3 fatty acids upregulate genes
     involved in neurotrophin signalling in fetal brain during pregnancy in
     C57BL/6 mice

L47  ANSWER 3 OF 1148  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   3-Nitrooxypropanol decreases methane emissions and increases hydrogen
     emissions of early lactation dairy cows, with associated changes in
     nutrient digestibility and energy metabolism

L47  ANSWER 4 OF 1148  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   GlycA, a novel marker for low grade inflammation, reflects gut microbiome
     diversity and is more accurate than high sensitive CRP in reflecting
     metabolomic profile

L47  ANSWER 5 OF 1148  HCAPLUS  COPYRIGHT 2020 ACS on STN
```

```
TI   Omega-3 fatty acid supplementation in pregnancy-baseline omega-3
     status and early preterm birth: exploratory analysis of a randomised
     controlled trial

=> e a23l001/ipc
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1           1            A23L0000-01/IPC
E2           1            A23L0000142/IPC
E3      246926       --> A23L0001/IPC
E4           1            A23L0001-/IPC
E5           1            A23L0001-0/IPC
E6       16638     1      A23L0001-00/IPC
E7        5072     1      A23L0001-01/IPC
E8        4112     1      A23L0001-015/IPC
E9           1            A23L0001-019/IPC
E10         69     1      A23L0001-02/IPC
E11       1428     1      A23L0001-025/IPC
E12          1            A23L0001-029/IPC
```

EXPAND command E used to show the index for the IPC field around the coding A23L1. This shows me the exact format for this field in Chemical Abstracts.

```
=> e a23l0001-29/ipc
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1         183     1      A23L0001-277/IPC
E2        7569     1      A23L0001-28/IPC
E3       44207     1 --> A23L0001-29/IPC
E4       52431     1      A23L0001-30/IPC
E5           1            A23L0001-300/IPC
E6        5023     1      A23L0001-302/IPC
E7        1607     1      A23L0001-303/IPC
E8        6731     1      A23L0001-304/IPC
E9       10517     1      A23L0001-305/IPC
E10       1922     1      A23L0001-307/IPC
E11       4868     1      A23L0001-308/IPC
E12       5380     1      A23L0001-31/IPC
```

EXPAND command repeated for the specifically require sub-codes

```
=> s e3-e4 or e6-e7
         44207 A23L0001-29/IPC
         52431 A23L0001-30/IPC
          5023 A23L0001-302/IPC
          1607 A23L0001-303/IPC
L48      93039 (A23L0001-29/IPC OR A23L0001-30/IPC) OR (A23L0001-302/IPC OR
               A23L0001-303/IPC)
```

This Select command retrieves records includes the codes shown as E3, E4, E6 or E7 in the Expand list.

```
=> e a23l0001-29/cpc
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1           8            A23L0001-277/CPC
E2          38            A23L0001-28/CPC
E3          23       --> A23L0001-29/CPC
E4          32            A23L0001-293/CPC
E5         168            A23L0001-296/CPC
E6         242            A23L0001-30/CPC
E7         423            A23L0001-3002/CPC
E8          47            A23L0001-3004/CPC
E9          77            A23L0001-3006/CPC
E10        133            A23L0001-3008/CPC
E11          2            A23L0001-301/CPC
E12          9            A23L0001-3012/CPC

=> e
```

```
E13         110            A23L0001-3014/CPC
E14          13            A23L0001-3016/CPC
E15           6            A23L0001-3018/CPC
E16         107            A23L0001-302/CPC
E17          45            A23L0001-303/CPC
E18         149            A23L0001-304/CPC
E19          25            A23L0001-3045/CPC
E20          44            A23L0001-305/CPC
E21          88            A23L0001-3051/CPC
E22          77            A23L0001-3053/CPC
E23          54            A23L0001-3055/CPC
E24          83            A23L0001-3056/CPC
```

Although there was no equivalent listing for CPC codes decided to check as these might have existed in the past - Search repeated for the equivalent CPC codes and codes represented by E3 to E6 and E17 and E18 selected. By just sending the command E the next 12 entries in the specified index field are displayed.

```
=> s e3 or e6 or e16-e17
            23 A23L0001-29/CPC
           242 A23L0001-30/CPC
           107 A23L0001-302/CPC
            45 A23L0001-303/CPC
L49         376 A23L0001-29/CPC OR A23L0001-30/CPC OR (A23L0001-302/CPC OR
A23L0001-303/CPC)
```

Search repeated for the equivalent IPC and CPC codes and codes under **A23L0033-00**. Expands not shown here but selected as commands L50 and L51 below.

```
=> s e3-e4 or e7-e8 or e14-e15
         63210 A23L0033-00/IPC
         35078 A23L0033-10/IPC
          3658 A23L0033-115/IPC
          2500 A23L0033-12/IPC
          9366 A23L0033-15/IPC
          2880 A23L0033-155/IPC
L50     104197 (A23L0033-00/IPC OR A23L0033-10/IPC) OR (A23L0033-115/IPC OR
               A23L0033-12/IPC) OR (A23L0033-15/IPC OR A23L0033-155/IPC)

=> s e3-e4 or e7-e8 or e15-e16
         18134 A23L0033-00/CPC
         23831 A23L0033-10/CPC
          3781 A23L0033-115/CPC
          3408 A23L0033-12/CPC
          6197 A23L0033-15/CPC
          1881 A23L0033-155/CPC
L51       49273 (A23L0033-00/CPC OR A23L0033-10/CPC) OR (A23L0033-115/CPC OR
               A23L0033-12/CPC) OR (A23L0033-15/CPC OR A23L0033-155/CPC)

=> e 4b018/md/fterm
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1          18     2     4B018/MC05/FTERM
E2           5     2     4B018/MC07/FTERM
E3           0       --> 4B018/MD/FTERM
E4           1           4B018/MD00/FTERM
E5        1003           4B018/MD01/FTERM
E6         373           4B018/MD02/FTERM
E7         386           4B018/MD03/FTERM
E8         664           4B018/MD04/FTERM
E9         536           4B018/MD05/FTERM
E10        267           4B018/MD06/FTERM
E11       2440           4B018/MD07/FTERM
E12       2379           4B018/MD08/FTERM

=> e
```

```
E13        1149           4B018/MD09/FTERM
E14        1144           4B018/MD10/FTERM
E15         516           4B018/MD11/FTERM
E16         419           4B018/MD12/FTERM
E17         161           4B018/MD13/FTERM
E18         863           4B018/MD14/FTERM
E19         496           4B018/MD15/FTERM
E20         118           4B018/MD16/FTERM
E21         173           4B018/MD17/FTERM
E22         831           4B018/MD18/FTERM
E23        1318           4B018/MD19/FTERM
E24        2709           4B018/MD20/FTERM

=> e
E25         166           4B018/MD21/FTERM
E26         259           4B018/MD22/FTERM
E27        1197           4B018/MD23/FTERM
E28         326           4B018/MD24/FTERM
E29         611           4B018/MD25/FTERM
E30         489           4B018/MD26/FTERM
E31         985           4B018/MD27/FTERM
E32         521           4B018/MD28/FTERM
E33         584           4B018/MD29/FTERM
E34         248           4B018/MD30/FTERM
E35         578           4B018/MD31/FTERM
E36         394           4B018/MD32/FTERM
```

Search repeated for the equivalent Japanese F-Term codes and the required codes are selected. In this case had to re-use the E command twice to view all the required codes.

```
=> s e5 or e15 or e17 or e27-e30 or 4b018/me02/fterm
          1003 4B018/MD01/FTERM
           516 4B018/MD11/FTERM
           161 4B018/MD13/FTERM
          1197 4B018/MD23/FTERM
           326 4B018/MD24/FTERM
           611 4B018/MD25/FTERM
           489 4B018/MD26/FTERM
          1823 4B018/ME02/FTERM
L52       4144 4B018/MD01/FTERM OR 4B018/MD11/FTERM OR 4B018/MD13/FTERM OR (4B0
               18/MD23/FTERM OR 4B018/MD24/FTERM OR 4B018/MD25/FTERM OR 4B018/M
               D26/FTERM) OR 4B018/ME02/FTERM
```

In addition to selecting terms from the FTerm index a further code from a separate part of the Fterm scheme has been included in set L52

```
=> s l48-l52
L53     152809 (L48 OR L49 OR L50 OR L51 OR L52)
```

All the identified patent codes are combined into one single set L53

```
=> s l53 and l42
L54        4403 L53 AND L42

=> s l53 and l22
L55        3173 L53 AND L22

=> s l24 or l30 or l34 or l38 or l44 or l46 or l54-l55
L56       29549 L24 OR L30 OR L34 OR L38 OR L44 OR L46 OR (L54 OR L55)
```

Combination of acid terms with product terms – broadest selections made

```
=> s l56 and p/dt
      15837027 P/DT
L57        6666 L56 AND P/DT
```

Limiting set L56 to patent documents using the DT = Document Type field

```
=> s (l57 and de/pc,ds) or (l57 and nl/pc,ds) or (l57 and at/pc,ds) or (l57 and
ca/pc,ds) or (l57 and us/pc,ds) or (l57 and jp/pc,ds) or (l57 and cn/pc,ds)
        1001659 DE/PC
        2867230 DE/DS
         119310 NL/PC
```

```
        2787026 NL/DS
         294984 AT/PC
        2717645 AT/DS
         768915 CA/PC
        2231668 CA/DS
        3858526 US/PC
        2164542 US/DS
        4890741 JP/PC
        2084556 JP/DS
        6293414 CN/PC
        2184976 CN/DS
L58        5992 (L57 AND DE/PC,DS) OR (L57 AND NL/PC,DS) OR (L57 AND AT/PC,DS)
                OR (L57 AND CA/PC,DS) OR (L57 AND US/PC,DS) OR (L57 AND JP/PC,DS
                ) OR (L57 AND CN/PC,DS)
```

Limiting to the required countries using the PC and DS fields with the ISO codes for countries – note Austria is AT. PC = patent country field; DS = designated state field (for PCT and/or EP applications)

```
=> set range=1997,
SET COMMAND COMPLETED
```

Earlier patent records in Chemical Abstracts do not have complete information so it is possible the priority field may not be properly populated. By using the SET RANGE command I can remove the older records from my data set. The specific instruction has asked the system to limit future sets to records that have a publication date of 1997 or later.

```
=> s l58 not pry.b<2000
         965093 PRY.B<2000
L59        5527 L58 NOT PRY.B<2000
```

This limits the results from set L58 to patents with a basic priority date since the start of 2000. PRY = priority year; PRY.B = basic priority year: < means value less than (in this case 2000). So by using the NOT operator I exclude patents with a priority date NOT less than 2000 (earlier than).

SEE CORRECTED OMISSION AT END OF THIS DOCUMENT

```
=> s l59 not 20000101-20000531/prd.b
         104487 20000101-20000531/PRD.B
                  (20000101-20000531/PRD.B)
L60        5485 L59 NOT 20000101-20000531/PRD.B
```

PRD = priority date; PRD.B = basic (earliest) priority date. So now I have removed any patent with a basic priority date before 31st May 2000

```
=> set range=all
SET COMMAND COMPLETED
```

Removes the publication date restriction – all future searches will be across the full Chemical Abstracts database

```
=> s l60 and l23
L61        3269 L60 AND L23
```

Results for CONCEPT Da – must contain the term stem SUPPLEMENT...

This is probably too large a result set and probably includes large numbers of irrelevant records

```
=> s l60 and (l29 or l33 or l37 or l41)
L62         806 L60 AND (L29 OR L33 OR L37 OR L41)
```

Set L62 is the most specific sub-set of set L60 where the specific supplement terms are in the same part of the records as the acid terms. Based on personal experience (in a different technical field) I would consider scanning through this number of results. In a real life I would also consider the number of results for the other larger sub-sets of CONCEPT Da highlighted in my search – I would do this by checking the numbers retrieved and sampling a few titles for relevance. Results sets can be divided by looking at most specific results sets first and then NOTing these from any broader results so that I do not repeatedly check the same results.

```
=> s l60 and l43
L63         296 L60 AND L43
```

Results for CONCEPT Db – must contain the “breast feeding” terms from set L43. This number is ok

```
=> s l60 and l52
L64         649 L60 AND L52
```

Results for CONCEPT Dc – must contain the patent classification codes from set L52. This number is probably too large.

```
=> d ti l64 1-5

L64  ANSWER 1 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Myopia progression inhibitor, functional food, and ophthalmic composition
     [Machine Translation].

L64  ANSWER 2 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Allergic conjunctivitis prevention or treatment preparation containing
     omega-3 fatty acid or its ester

L64  ANSWER 3 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Anthocyanin-containing capsule for oral ingestion

L64  ANSWER 4 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Edible oil for efficient extraction of liposoluble functional component
     from plant and marine algae

L64  ANSWER 5 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Method for selecting nutrients or foods suitable for improving intestinal
     flora for subjects with specific single nucleotide polymorphism


=> d hitind 1,3
```
This display command shows the Indexing fields (Coding fields + INDEX TERM sub-fields) that contain the search terms used to retrieve the default/last result set L64
```
L64  ANSWER 1 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
IPCI A61K0031-202 [I]; A61P0027-10 [I]; A61K0036-55 [I]; A61K0036-535 [I];
     A23L0033-12 [I]
CC   63 (Pharmaceuticals)

L64  ANSWER 3 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
IPCI A61K0009-48 [I]; A61P0039-06 [I]; A61P0027-10 [I]; A61K0031-7048 [I];
     A61K0031-122 [I]; A61K0031-047 [I]; A61P0043-00 [I]; A61K0036-45 [I];
     A23L0033-105 [I]; A23K0010-30 [I]; A23K0040-30 [I]; A23K0020-121 [I];
     A23K0020-105 [I]; A23K0020-174 [I]
IPCR A61K0009-48 [I]; A23K0010-30 [I]; A23K0020-105 [I]; A23K0020-121 [I];
     A23K0020-174 [I]; A23K0040-30 [I]; A23L0033-105 [I]; A61K0031-047 [I];
     A61K0031-122 [I]; A61K0031-7048 [I]; A61K0036-45 [I]; A61P0027-10 [I];
     A61P0039-06 [I]; A61P0043-00 [I]
CC   63-6 (Pharmaceuticals)
IT   50-81-7, Vitamin C, biological studies   127-40-2, Lutein   144-68-3,
     Zeaxanthin   432-70-2, α-Carotene   465-42-9, Capsanthin   472-70-8,
     β-Cryptoxanthin   472-92-4, δ-Carotene   472-93-5,
     γ-Carotene   502-65-8, Lycopene   514-78-3, Canthaxanthin
     1406-18-4, Vitamin E   3351-86-8, Fucoxanthin   6217-54-5,
     Docosahexaenoic acid   7235-40-7, β-Carotene   27876-94-4, Crocetin
     68831-78-7, Antheraxanthin   2414490-62-1, MyrtiPRO   2414491-71-5,
     Marigold Dye Oil 204
     RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
        (anthocyanin-contg. capsule for oral ingestion)
```
The acid CONCEPTS were not present in the Index fields of the most recent result but is in item 3.

```
=> d hit
```
This display command shows all the (sub-)fields that include the search terms used to retrieve the selected record – by default the 1st record in set L63
```
L64  ANSWER 1 OF 649  HCAPLUS  COPYRIGHT 2020 ACS on STN
PI
     PATENT NO.          KIND  DATE        APPLICATION NO.          DATE
     ---------------     ----  --------    ---------------------    --------
     JP 2020138964        A    20200903    JP 2020-29934            20200225
CLASS
 PATENT NO.      CLASS  PATENT FAMILY CLASSIFICATION CODES
 --------------- -----  ----------------------------------------------------
```

JP 2020138964 FTERM 4B018/MD10; 4B018/MD11; 4B018/MD12; 4B018/MD13; 4B018/MD15; 4B018/ME14; 4B018/MF01; 4C088/AB12; 4C088/AB38; 4C088/AC04; 4C088/BA08; 4C088/BA18; 4C088/CA03; 4C088/MA52; 4C088/NA14; 4C088/ZA33; 4C206/AA01; 4C206/AA02; 4C206/DA05; 4C206/MA01; **4C206/MA04; 4C206/MA72; 4C206/NA14; 4C206/ZA33**

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2020138964	IPCI	A61K0031-202 [I]; A61P0027-10 [I]; A61K0036-55 [I]; **A61K0036-535 [I]; A23L0033-12 [I]**

DT **Patent**

AB [Machine Translation of Descriptors]. PROBLEM TO BE SOLVED: To provide a myopia progression inhibitor, a functional food, and an ophthalmic compn. capable of suppressing the extension of myopic axis length to inhibit the progression of axial myopia. A compn. contg. an **omega-3 fatty acid** suppresses elongation of the axial length of the eye. The **omega-3 fatty acid** is preferably one or more unsatd. fatty acids selected from α-linolenic acid, eicosapentaenoic acid and docosahexaenoic acid, and one or more oils selected from flaxseed oil, perilla oil and perilla oil. It is preferable that it is extd. from The dosage form is preferably an ingestible drug, [selection diagram] FIG.

These results indicate that the use of the selected patent classification codes for Foods are too broad and probably should be more focussed on to food supplements. Alternatively the majority of the results may have been retrieved by some/all of the more generic terms selected to describe these acids.

Possible means to reducing results set L64 without discarding relevant documents – L65 to L70

```
=> s l64 and l23
L65         312 L64 AND L23
```

Limiting L63 to records that also include the word stem SUPPLEMENT? anywhere in the record. As previously said since the meaning of this extra term has not be associated with any other term this search will still retrieve records which do not relate to food supplements (e.g. supplementary processes). [Still too big – does it include too many irrelevant records ? see L67]

```
=> d ti 1-5

L65  ANSWER 1 OF 312  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Composition and method to alleviate joint pain using hyaluronic acid and
     eggshell membrane components

L65  ANSWER 2 OF 312  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Nutritional and dietary supplement for taking necessary nutritional
     ingredient

L65  ANSWER 3 OF 312  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Nutritional adjustment food for oral intake comprising carbohydrate,
     protein, and lipid

L65  ANSWER 4 OF 312  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Algae for nutritional supplement composition

L65  ANSWER 5 OF 312  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Algae using Haematococcus, and nutrient, composition for supplementing
     nutrient, and method for producing nutrient component

=> s l16 and l64
L66         451 L16 AND L64
```

Limiting L64 to records that also include CONCEPT C – docosahexaenoic acid. This acid set L16 had the fewest records in Chemical Abstracts of the individual acids but still gave a large number of results. This would indicate that limiting to any specific acid is not a useful approach.

```
=> s l43 and l64
L67          12 L43 AND L64
```

Limiting L64 to records that also include the "breast feeding" terms – even if L67 includes no relevant hits this is a small enough set to scan through.

```
=> s L25 and l64
L68         301 L25 AND L64
```

As indicated above set L65 many still include (many/mostly ?) records not relating to health foods. Combining L64 with specific supplement phrases L25 rather than the unqualified SUPPLEMENT string only removes a small part of set L65.

```
=> s L28 and l64
L69         289 L28 AND L64
=> s L28 and l63
L68         831 L28 AND L63
```

Further limiting set L64 to records in which the "health supplement" terms are either in the Title or an Index Term sub-field of the record. This still does not remove much of set L65

```
=> s L65 NOT L69
L70          23 L65 NOT L69
```

This set considers the records from L65 that appear to not relate to "health supplement" terms.

=> d ti 1-5

Checking to see if any of the remainder in set L70 might also be relevant.

```
L70  ANSWER 1 OF 23  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Improved method for growing algae

L70  ANSWER 2 OF 23  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Use of a composition comprising marine oil and juice for improving muscle
     performance

L70  ANSWER 3 OF 23  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Process for preparation and stabilization of emulsions with omega-3
     fatty acids by means of isometric crystalline networks of cellulose
     derivatives

L70  ANSWER 4 OF 23  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Process for preparation and stabilization of emulsions with omega-3
     fatty acids by means of isometric crystalline networks of cellulose
     derivatives

L70  ANSWER 5 OF 23  HCAPLUS  COPYRIGHT 2020 ACS on STN
TI   Improved cognitive supplements comprising vitamins, alkaloids and herbs
```

```
=> d l70 abs hitind 5
```

Record 5 looks worth further investigation.

The display command gives the Abstract and Index Term (sub-)fields including search terms selected.

```
L70  ANSWER 5 OF 23  HCAPLUS  COPYRIGHT 2020 ACS on STN
AB   The invention generally provides supplements and methods of using the
     same to improve cognitive functions such as learning, memory, concn.,
     focus, attention, and mood.
IPCI A01N0065-00 [I]; A23K0003-02 [I]
IPCR A01N0065-00 [I]; A23K0003-02 [I]
CC   18-2 (Animal Nutrition)
     Section cross-reference(s): 17, 63
ST   dietary supplement cognition mental activity vitamin alkaloid herb
IT   Attention deficit hyperactivity disorder
        (ADD; improved cognitive supplements comprising vitamins,
        alkaloids and herbs)
IT   Neurotransmission
        (cholinergic; improved cognitive supplements comprising
        vitamins, alkaloids and herbs)
IT   Bacopa monnieri
     Biological memory
     Cognition
     Cognitive disorders
     Controlled-release drug delivery systems
     Dyslexia
```

Effervescence
Emotion
Ginkgo biloba
Herb
Learning
Mental attention
Panax ginseng
Pharmaceutical liquids
Pharmaceutical lozenges
Pharmaceutical powders
Pharmaceutical solids
Pharmaceutical tablets
Rhodiola rosea
Transdermal drug delivery systems
(improved cognitive **supplements** comprising vitamins, alkaloids and herbs)

IT Alkaloids
Amino acids
Lipids
Phospholipids
Polyunsaturated **ω-3 fatty acids**
Vitamins
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(improved cognitive **supplements** comprising vitamins, alkaloids and herbs)

IT Neurotransmission
(monoaminergic; improved cognitive **supplements** comprising vitamins, alkaloids and herbs)

IT 58-08-2, Caffeine, biological studies 59-30-3, Folic acid, biological studies 59-43-8, Thiamine, biological studies 63-68-3, L-Methionine, biological studies 67-97-0, Vitamin D3 68-19-9, Cyanocobalamin 79-83-4 87-67-2, Choline bitartrate 357-70-0, Galantamine 541-15-1, L-Carnitine 987-78-0, Citicholine 1309-48-4, Magnesium oxide, biological studies 1406-16-2, Vitamin D 3040-38-8, L-Acetyl carnitine 3081-61-6, L-Theanine 3632-91-5, Magnesium gluconate **6217-54-5**, **Docosahexaenoic** acid 7491-74-9, Piracetam 7779-25-1, Magnesium citrate 10417-94-4, Eicosapentaenoic acid 12001-76-2, Vitamin B 13422-51-0, Hydroxocobalamin 13422-55-4, Methylcobalamin 14783-68-7, Magnesium glycinate 28319-77-9, L-α Glycerylphosphorylcholine 42971-09-5, Vinpocetine 68497-62-1, Pramiracetam 72432-10-1, Aniracetam 102518-79-6, Huperzine A 106530-90-9
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(improved cognitive **supplements** comprising vitamins, alkaloids and herbs)

Record 5 although not relevant to breast-feeding mothers does cover dietary supplements. I therefore would take the decision to include all set L65 in my "final" records set.

At this late stage I realised that I have not included the US Patent Code for "Nutritional Or Dietetic Supplement"

```
=> e 426648/ncl
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1         540     2     426646000/NCL
E2         129     2     426647000/NCL
E3           0       --> 426648/NCL
E4        1580     3     426648000/NCL
E5         327     2     426649000/NCL
E6        1575     3     426650000/NCL
E7         449     2     426651000/NCL
E8         468     2     426652000/NCL
```

```
E9          495     2     426653000/NCL
E10        1088     2     426654000/NCL
E11        1030     2     426655000/NCL
E12        2834     3     426656000/NCL
=> s e4
L71         292 426648000/INCL
```

This set needs to be merged into set L53 and the subsequent search sets L54-L70 rerun.

**********END OF SEARCH**********

As I am running out of time I will just list some possible next steps:

1. Combine sets L62, L63, L65 and L67 – Or operator
2. Examine remainder of sets L61 and L64 not include in selection above to see if I should include any further sub-sets of these large result sets
3. Display and scan offline all the titles from point 1 (and any other selections from point 2). Use SAVE TEMP command to temporarily save result set(s) for later selection.
4. Discard any records from point 3 that are clearly not relevant for this FTO
5. Use ACT command to recall saved results online. Scan all remaining records from point 4 in more detail – this could mean scanning the full records or using the SEL PN.B command to write the first patent number from each record/patent family into a new index list and display the resulting E numbers with the command "S E1-En" where n patent numbers were displayed. The full-text for these selected patents (or their equivalents) can then be viewed in PatBase.
6. Identify documents that are potentially relevant for this FTO – I would expect the final decision on relevance to be made by my attorney.
7. Check the legal status of the selected patents/applications.
8. Repeat search in the Derwent World Patent Index database on STN. The different record structure (with a main abstract plus individual patent sub-records possibly including claims or separate abstracts) may result in changes to the search strategy compared with Chemical Abstracts. One clear change is the use of the Derwent Chemical Resource for indexing chemicals compared with the Chemical Abstracts Registry Numbers. I would also have to check if the Derwent Manual Codes includes alternative possible way(s) of indexing health supplements etc..
9. Write report highlighting potentially relevant patents/applications. Depending on the preference of my attorney I would either
    a. exclude those families where there was no currently live members and no possibility for "revival" (e.g. at the EPO where a recently "deemed withdrawn" filing could request further processing) or
    b. include all selected documents will a full description of their current legal status.