2021 Patent Infringement Risk Search – Biotech/Life Sciences
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 company will launch a pharmaceutical composition, which is composed by:
Ginkgo biloba P.E(70%),which is the extraction from Chinese traditional medicine Ginkgo,
a chemical compound 4-Ethoxy-2-methyl-5-(4-morpholinyl)-3(2H)-pyridazinone(26%).
and some inorganic substances, including Calcium carbonate(2%),Sodium chloride(2%).

The medicine composition are prepared to dripping pills, and the main adjuvant material is polyethylene glycol 6000.

The medicine can be used to treat cardiac disease.

Now, the company want to launch the medicine in China, Japan, United State and Germany. They hope the product will be launched before this Aug.

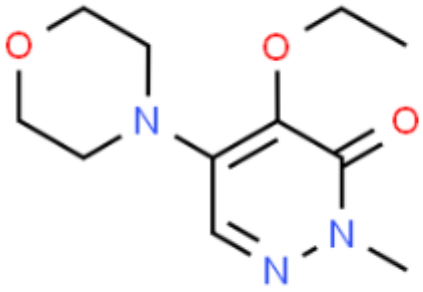
From the instructions provided I have no indication which parts of the composition need clearing (e.g. is it the Ginkgo material or the pyridazinone for cardiac disease? Or is it the production of dripping pills using either material? Is it any combination of the 2 main ingredients in pharmaceuticals?).
As this is a Freedom-to-Operate request I can limit my searching to patents or patent applications.
It is clear that I need to limit my selections to "live" patents or patent applications that cover at least one of the countries CN, JP, US or DE. This should include EP or WO (PCT) publications.
The launch date is August 2021 so I need to limit to documents that could still be live then – so I need to further limit to patents/applications with a priority of August 2000 or later. This allows for a standard 20 years from filing date plus a further priority year = 21 years.
[I am not familiar with SPCs and so do not know whether patents in this technical field could request an extension. If this was possible I would have to reduce the date for the priority to include a few extra years (5 years would mean priority date ≥ August 1995)].

I have no knowledge in this area so I started with a brief search on the internet for some of the terms:
Ginkgo biloba has a Wikipedia page
http://en.wikipedia.org/wiki/Ginkgo_biloba
This points to the Family https://en.wikipedia.org/wiki/Ginkgoaceae
"The **Ginkgoaceae** is a family of gymnosperms which appeared during the Mesozoic Era, of which the only extant representative is *Ginkgo biloba* The **Ginkgoaceae** is a family of gymnosperms which appeared during the Mesozoic Era, of which the only extant representative is *Ginkgo biloba*"
or https://en.wikipedia.org/wiki/Ginkgo

I looked for Ginkgo Chinese medicine
e.g. https://www.meandqi.com/herb-database/ginkgo-leaves
http://altmedicine.about.com/cs/herbsvitaminsek/a/Ginkgo.htm

This might also be known as **maidenhair tree,** Kew tree, and Japanese silver apricot

4-Ethoxy-2-methyl-5-(4-morpholinyl)-3(2H)-pyridazinone has a ChemSpider entry
http://www.chemspider.com/Chemical-Structure.3108.html



Emorfazone

Molecular Formula	$C_{11}H_{17}N_3O_3$
Average mass	239.271 Da
Monoisotopic mass	239.126984 Da
ChemSpider ID	3108

4-ethoxy-2-methyl-5-morpholin-4-ylpyridazin-3(2H)-one

Systematic name 4-Ethoxy-2-methyl-5-(4-morpholinyl)-3(2H)-pyridazinone
CAS Registry Number 38957-41-4

I was also unfamiliar with the term “dripping pill”
See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5407045/
“Dripping pill is a solid dispersion product derived from a combination of the drug product and matrix through melt dispersion, dripping, and consolidation.”
See also http://cardioshen.com/3.html
The Dripping Pill is a rapidly developing form of Chinese herbal medicine, prepared by blending an herbal extract and a matrix under thermal conditions and dripping the mixture into a cooling liquid in which the droplets are insoluble. The process of pill formation results in a solid-dispersoid in a pill shape
This short web-site seems quite instructive and with more time I would read properly and possibly follow other leads to improve my understanding.
I did notice quickly that this format is supposed to increase bioavailability of Chinese/herbal medicines.

Looking up cardiac disease gives the wiki page for cardiovascular disease:
http://en.wikipedia.org/wiki/Cardiovascular_disease
and other suitable terms:

heart disease, Coronary artery disease, Cardiomyopathy (diseases of cardiac muscle), Heart failure, Cor pulmonale, Cardiac dysrhythmias (abnormalities of heart rhythm), Endocarditis, Inflammatory cardiomegaly, Myocarditis, Cerebrovascular disease, Peripheral arterial disease

I next looked up Ginkgo in PatBase:
This gave many hits in the Title, Abstracts and Claims fields (TAC):

	Search query	Results
1	TAC=(ginkgo biloba)	2903

This looks for the specific phrase in these 3 fields.

The spread of the selected documents is quite wide so I linked this to a couple of cardio terms:
TAC=Cardiac or cardio*
This retrieves any documents with either the term CARDIAC or any term beginning with CARDIO in the TAC fields.
The * symbol is a truncation instruction is being used to request any term beginning with CARDIO (so includes cardio and cardiovascular for example).

These results can be combined with my earlier “Ginkgo” set.
It is possible to have both terms in the same document (set 4 below) or the same patent family (set 3 below)

I also can restrict to the required countries in PatBase with the CC= field (country code).
Also to the required date range – using the priority field PRD.
In PatBase the records may have multiple priorities so there is an even more specific field EPR = earliest priority date.

Search history

Search 1:	TAC=(ginkgo biloba) (Results 2903)
Search 2:	TAC=(cardiac or cardio*) (Results 117450)
Search 3:	1 and 2 (Results 199)
Search 4:	TAC=((ginkgo biloba) and (cardiac or cardio*)) (Results 188)
Search 5:	TAC=(cardiac or cardio*) and CC=(CN or JP or US or DE or WO or EP) (Results 102328)
Search 6:	1 and 5 (Results 188)
Search 7:	TAC=(cardiac or cardio*) and PRD>200008 and CC=(CN or JP or US or DE or WO or EP) (Results 83,208)
Search 8:	1 and 7 (Results 181)
Search 9:	TAC=(cardiac or cardio*) and EPR>199308 and CC=(CN or JP or US or DE or WO or EP) (Results 78694)
Search 10:	1 and 9 (Results 168)

Set 3 uses the AND to combine the results of the 2 earlier sets. Set 4 is limited to results where both sets are in the same document rather than anywhere in the patent family.
Set 5 includes the country restriction to set 2. I have added WO and EP for PCT applications and EP patents/applications. I only need to restrict either the “ginkgo” or “cardio” terms since the AND combine means the limitation is effectively applied to the unrestricted set.

Set 7 is further limiting to documents with a priority date equal to or later than August 2000. [Format being YYYYMMDD]
Set 9 further restrict set 7 to documents with the earliest priority date equal to or later than August 2000.

I would browse this result set for relevant items.

In reality I should use the alternative synonyms for Ginkgo highlighted above including GINKGO AND ((CHINESE MEDICINE*) OR (HERBAL MEDICINE*))

Search 11:	tac=(GINKGO AND ((CHINESE MEDICINE*) OR (HERBAL MEDICINE*))) (Results 2484)
Search 12:	11 not 1 (Results 2219)
Search 13:	TAC=(GINKGO) AND TAC=((CHINESE MEDICINE*) OR (HERBAL MEDICINE*)) (Results 2492)

Notice this has retrieved many documents not described by GINKGO BILOBA.

Set 11 uses the TAC command which means that GINKGO must be in the same member of the patent family as the "medicine" phrases for it to be retrieved. [As only 8 documents were found in Set 13 with the medicine phrases in any member of the family I will use this Set].

The purpose of a FTO search is to take all reasonable steps to find documents that might potentially cover the new product. In this case it is reasonable to include the extra 8 hits from set 13. However if set 13 gave thousands more hits it may be reasonable to limit to set 11.

I would also use the following as a broader selection of potentially relevant CARDIO art:
cardiac or cardio* or (heart disease) or (Heart failure) or (Cor pulmonale) or Endocarditis or Myocarditis or (Cerebrovascular disease)
(Coronary or Peripheral) W (arter* disease*))
I should also check for suitable equivalent foreign language terms – especially in German or French.

For example:

Search 14: tac=((Coronary or Peripheral) W1 (arter* disease*)) (Results 4650)

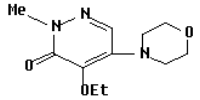
Search 15: 14 not 2 (Results 1784)

In set 14 I have searched for either "coronary" or "peripheral" adjacent to the phrase "arter* disease*".
The truncation ARTER* retrieves the terms arterial and artery.
WF1 would also specify the order of the 2 connected terms so Peripheral WF1 (arter* disease*) would retrieve "peripheral artery disease" but not "arterially diseased periphery".

I would also search for patents in the Chemical Abstracts and Derwent World Patent Index databases.
I start searching the CA Registry file on STN (I have added comments to my search record in red):

```
=> file reg
```
The FILE command changes database. REG is a recognised abbreviation for the CAS Registry database.
```
FILE 'REGISTRY' ENTERED AT 12:14:18 ON 16 SEP 2020

=> s 38957-41-4
L1            1 38957-41-4
                (38957-41-4/RN)
```
S = search request/Select
A Registry Number (RN) can just be entered in this database with no field identifier (/RN)
```
=> d rn cn str
```
D = display command.
Here to display the RN, Chemical Name and Structure fields
```
L1   ANSWER 1 OF 1  REGISTRY  COPYRIGHT 2014 ACS on STN
RN   38957-41-4  REGISTRY
CN   3(2H)-Pyridazinone, 4-ethoxy-2-methyl-5-(4-morpholinyl)-  (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN   4-Ethoxy-2-methyl-5-(4-morpholinyl)-3(2H)-pyridazinone
OTHER NAMES:
CN   4-Ethoxy-2-methyl-5-morpholino-3(2H)-pyridazinone
CN   Emorfazone
CN   M 73101
CN   Nandron
CN   Pentoil
CN   Pentoyl
```
This give suitable synonyms for searching – although it is not sensible to search systematic names including numerous numbers and short components e.g. methyl.




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

E = expand from an index. In the case below I have expanded around the term GINKGO in the Chemical Name field. The /CN is searched by default without the field suffix /CN but this would retrieve any entry where the selected characters appeared as a word within the CN field. So S DIOXOME would retrieve numerous terms including E1 below not just the DIOXIME alone.

```
=> e ginkgo/cn
E1            1     GINKGETIN, TETRA-O-METHYL-, DIOXIME/CN
E2            1     GINKGETIN, TETRAACETATE/CN
E3            0 --> GINKGO/CN
E4            1     GINKGO BILOBA/CN
E5            1     GINKGO BILOBA EXTRACT/CN
E6            1     GINKGO BILOBA EXTRACT 761/CN
E7            1     GINKGO BILOBA, EXT./CN
E8            1     GINKGO BILOBA, FERMENTED/CN
E9            1     GINKGO BILOBA-HEPTAMINOL CHLORIDE-TRIHYDROXYETHYLRUTOSIDE MI
                    XT./CN
E10           1     GINKGO PRIM/CN
E11           1     GINKGOIC ACID/CN
E12           1     GINKGOL/CN
```

The Select request below has retrieved items 4 and 5 from the EXPAND list above. The dash is acting as an OR command

```
=> s e4-e8
              1 "GINKGO BILOBA"/CN
              1 "GINKGO BILOBA EXTRACT"/CN
              1 "GINKGO BILOBA EXTRACT 761"/CN
              1 "GINKGO BILOBA, EXT."/CN
              1 "GINKGO BILOBA, FERMENTED"/CN
L2            4 ("GINKGO BILOBA"/CN OR "GINKGO BILOBA EXTRACT"/CN OR "GINKGO
                BILOBA EXTRACT 761"/CN OR "GINKGO BILOBA, EXT."/CN OR "GINKGO
                BILOBA, FERMENTED"/CN)

=> d rn cn 1-4


L2   ANSWER 1 OF 4  REGISTRY  COPYRIGHT 2020 ACS on STN
RN   2395737-08-1  REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
  result in incomplete search results.  For additional information, enter HELP
  RN* at an online arrow prompt (=>).
CN   Ginkgo biloba  (CA INDEX NAME)
OTHER NAMES:
CN   EGB 50
CN   Ginkgo biloba extract
CN   Maidenhair tree
CN   Salisburia adiantifolia

L2   ANSWER 2 OF 4  REGISTRY  COPYRIGHT 2020 ACS on STN
RN   2304949-39-9  REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
  result in incomplete search results.  For additional information, enter HELP
  RN* at an online arrow prompt (=>).
CN   Ginkgo biloba, fermented  (CA INDEX NAME)

L2   ANSWER 3 OF 4  REGISTRY  COPYRIGHT 2020 ACS on STN
RN   122933-57-7  REGISTRY
CN   Ginkgo biloba extract 761  (CA INDEX NAME)
OTHER NAMES:
CN   EBB 761
CN   EGB 761
CN   GBE 761
CN   GBE 761 ONC
```

```
CN   Rokan
CN   Tanakan
CN   Tanakan (platelet-activating factor-acether antagonist)
CN   Tanakan F
CN   Tebokan
CN   Tebonin

L2   ANSWER 4 OF 4  REGISTRY  COPYRIGHT 2020 ACS on STN
RN   90045-36-6  REGISTRY *
* Use of this CAS Registry Number alone as a search term in other STN files may
  result in incomplete search results.  For additional information, enter HELP
  RN* at an online arrow prompt (=>).
CN   Ginkgo biloba, ext.  (CA INDEX NAME)
```

ANSWERs 1 and 3 above gives other alternative search terms for Ginkgo Biloba

```
=> log hold
```

LOG HOLD exits from the online session but keeps this open for 2 hours

Assuming here that I am searching for either the combination of the 2 materials in any pharmaceutical or either chemical in CARDIO products. I could select search terms from the Registry records using the SELECT NAME command.
However I prefer to create a search command offline as this is often a more efficient search:

Reconnecting to REG:

```
FILE 'REGISTRY' ENTERED AT 12:27:02 ON 16 SEP 2020

=> file hcaplus
```

FILE command to change database to a variant of Chemical Abstracts with lower term charges

```
FILE 'HCAPLUS' ENTERED AT 12:27:33 ON 16 SEP 2020

=> d hist
```

Display HIST command gives a short version of the search activity in the current session

```
     (FILE 'HOME' ENTERED AT 12:14:08 ON 16 SEP 2020)

     FILE 'REGISTRY' ENTERED AT 12:14:18 ON 16 SEP 2020
L1            1 S 38957-41-4
                E GINKGO/CN
L2            4 S E4-E8

     FILE 'HCAPLUS' ENTERED AT 12:27:33 ON 16 SEP 2020

=> s l1
L3          108 L1
```

Searches for the RN for the pyridazinone in Chemical Abstracts

```
=> S Emorfazone or M()73101 or M73101 or Nandron or Pentoil or Pentoyl
             66 EMORFAZONE
        4044938 M
             35 73101
             30 M(W)73101
             30 M73101
              0 NANDRON
              2 PENTOIL
              8 PENTOYL
L4          106 EMORFAZONE OR M(W)73101 OR M73101 OR NANDRON OR PENTOIL OR PENTO
                YL
```

Searches for the synonyms for the pyridazinone. () is a proximity operator = (W) meaning that the terms linked by this operator must be adjacent in the order specified.

```
=> s l2
L5          663 L2
```

```
=> S Ginkgo()biloba or G()biloba or Ginkgoaceae or (ebb or egb or gbe)()761 or
egb()50 or rokan or tanakan or tebokan or tebonin
         25549 GINKGO
         17650 BILOBA
         17243 GINKGO(W)BILOBA
       4979112 G
         17650 BILOBA
           926 G(W)BILOBA
           194 GINKGOACEAE
          1158 EBB
          1470 EGB
           959 GBE
          6478 761
           621 (EBB OR EGB OR GBE)(W)761
          1470 EGB
       3381133 50
            14 EGB(W)50
            15 ROKAN
           117 TANAKAN
             3 TEBOKAN
            19 TEBONIN
L6         17435 GINKGO(W)BILOBA OR G(W)BILOBA OR GINKGOACEAE OR (EBB OR EGB OR
                 GBE)(W)761  OR EGB(W)50 OR ROKAN OR TANAKAN OR TEBOKAN OR TEBONIN
```

Synonyms for Ginkgo biloba

```
=> s (maidenhair or Kew)()tree or Japanese()silver()apricot or
Salisburia()adiantifolia
           230 MAIDENHAIR
           216 KEW
        187681 TREE
            48 (MAIDENHAIR OR KEW)(W)TREE
        101936 JAPANESE
        747717 SILVER
         16649 APRICOT
             0 JAPANESE(W)SILVER(W)APRICOT
            22 SALISBURIA
            27 ADIANTIFOLIA
            22 SALISBURIA(W)ADIANTIFOLIA
L7          70 (MAIDENHAIR OR KEW)(W)TREE OR JAPANESE(W)SILVER(W)APRICOT OR
               SALISBURIA(W)ADIANTIFOLIA
```

Synonyms for Ginkgo biloba

```
=> s gingko
L8          1329 GINGKO
```

Just checked for Gingko - mistyped

```
=> s l3-l4
L9           122 (L3 OR L4)
```

All pyridazinone sets combined together

```
=> s l5-l8
L10        18185 (L5 OR L6 OR L7 OR L8)
```

All Ginkgo terms together

```
=> s l9 and l10
L11            0 L9 AND L10
```

No combination of these 2 materials as described

```
=> s cardiac or cardio? or Heart or Cor()pulmonale or Endocarditis or
Myocarditis or Cerebrovascular
        291032 CARDIAC
        479645 CARDIO?
        657574 HEART
        150877 COR
           961 PULMONALE
           944 COR(W)PULMONALE
          6112 ENDOCARDITIS
```

```
          9505 MYOCARDITIS
         35164 CEREBROVASCULAR
L12    1031651 CARDIAC OR CARDIO? OR HEART OR COR(W)PULMONALE OR ENDOCARDITIS
               OR MYOCARDITIS OR CEREBROVASCULAR
```

The ? symbol in STN is a truncation command allowing for any term beginning with the specified character string eg CARDIO.....

```
=> s (Coronary or Peripheral)()arter?
        171200 CORONARY
        517025 PERIPHERAL
        444322 ARTER?
L13     105364 (CORONARY OR PERIPHERAL)(W)ARTER?

=> s l12-l13
L14    1063978 (L12 OR L13)
```

All cardio terms

```
=> s l14 and l9
L15         14 L14 AND L9
```

Cardio plus pyridazinone

```
=> s l14 and l10
L16       1646 L14 AND L10
```

Cardio plus Ginkgo

```
=> s l15 and p/dt
       9453715 P/DT
L17         10 L15 AND P/DT
=> s l16 and p/dt
       9453715 P/DT
L18       1113 L16 AND P/DT
```

Cardio plus Ginkgo but limited by Document type (/DT) to patents

```
=> d hist full
```

Displays the full history for this session

```
     (FILE 'HOME' ENTERED AT 12:14:08 ON 16 SEP 2020)

     FILE 'REGISTRY' ENTERED AT 12:14:18 ON 16 SEP 2020
L1             1 SEA 38957-41-4
                 D RN CN
                 E GINKGO/CN
L2             4 SEA ("GINKGO BILOBA"/CN OR "GINKGO BILOBA EXTRACT"/CN OR
                 "GINKGO BILOBA EXTRACT 761"/CN OR "GINKGO BILOBA, EXT."/CN OR
                 "GINKGO BILOBA, FERMENTED"/CN)
                 D RN CN 1-4

     FILE 'HCAPLUS' ENTERED AT 12:27:33 ON 16 SEP 2020
L3           108 SEA L1
L4           106 SEA EMORFAZONE OR M(W)73101 OR M73101 OR NANDRON OR PENTOIL OR
                 PENTOYL
L5           663 SEA L2
L6         17435 SEA GINKGO(W)BILOBA OR G(W)BILOBA OR GINKGOACEAE OR (EBB OR
                 EGB OR GBE)(W)761  OR EGB(W)50 OR ROKAN OR TANAKAN OR TEBOKAN
                 OR TEBONIN
L7            70 SEA (MAIDENHAIR OR KEW)(W)TREE OR JAPANESE(W)SILVER(W)APRICOT
                 OR SALISBURIA(W)ADIANTIFOLIA
L8          1329 SEA GINGKO
L9           122 SEA (L3 OR L4)
L10        18185 SEA (L5 OR L6 OR L7 OR L8)
L11            0 SEA L9 AND L10
L12      1031651 SEA CARDIAC OR CARDIO? OR HEART OR COR(W)PULMONALE OR ENDOCARDI
                 TIS OR MYOCARDITIS OR CEREBROVASCULAR
L13       105364 SEA (CORONARY OR PERIPHERAL)(W)ARTER?
L14      1063978 SEA (L12 OR L13)
L15           14 SEA L14 AND L9
L16         1646 SEA L14 AND L10
```

```
L17          10 SEA L15 AND P/DT
L18        1113 SEA L16 AND P/DT

=> s ginkgo
L19       25549 GINKGO
```
Search for Gingko not associated with biloba
```
=> s (chinese or herbal)(1a)medicin?
         488603 CHINESE
          82702 HERBAL
         750986 MEDICIN?
L20      300495 (CHINESE OR HERBAL)(1A)MEDICIN?
```
Searches for CHINESE OR HERBAL and the truncated term MEDICIN? (e.g. medicine, medicines, medicinal) combined by the proximity operator 1A meaning that the terms can be in any order but with no more than one extra term separating them in the selected records.
```
=> s l19(s)l20
L21        3825 L19(S)L20
```
Ginkgo and the medicine terms must be in the same sentence of a record – the S operator (as defined for the Chem Abs database)
```
=> d hit
```
Displays the HIT part of the 1st record in the default set L21 that retrieved the record (in red below)
```
L21  ANSWER 1 OF 3825  HCAPLUS  COPYRIGHT 2020 ACS on STN
AB   [Machine Translation of Descriptors].  The invention relates to a kind of
     formula of health tea, particularly to technical field of Chinese
     medicine tea.The formula of health tea comprises the following
     components in parts by weight:5-15 parts of Chinese yam,20-25 parts of
     spina date seed,20-25 parts of fructus crataegi,15-20 parts of cassia
     seed,5-10 parts of agastache rugosus,5-10 parts of Fructus Lycii,5-10
     parts of ginkgo leaves,10-15 parts of lily,5-10 parts of Flos
     Chrysanthemi Indici,15-20 parts of Flos Lonicerae.A kind of formula of
     health tea provided by the invention can be used for regulating
     hypertension, hyperlipidemia, immunoregulation, calming and sleeping,
     protecting liver, detoxifying, improving microcirculation, regulating
     female endocrine, delaying senescence, softening blood vessel, regulating
     blood pressure, blood glucose and uric acid through compatibility of all
     Chinese medicine components.
```
This has no worked as expected due to an error in the MT – there is no space after the full stops which would signal a new sentence to the system.
```
=> d hit 2-4
```
Repeats the above DISPLAY command for records 2 to 4 in set L21
```
=> s l19(l)l20
L22        4503 L19(L)L20
```
Ginkgo and the medicine terms must be in the same paragraph/sub-filed of a record – the L proximity operator as defined for the Chemical Abstracts database.
```
=> s l22 not l21
L23         678 L22 NOT L21

=> d hit l23

L23  ANSWER 1 OF 678  HCAPLUS  COPYRIGHT 2020 ACS on STN
AB   [Machine Translation of Descriptors].  The present invention provides a
     can make male penis increase dietary supplement and its prepn. method,
     relates to the tech. field of food.  This can make the male penis increase
     dietary supplements include the following parts by wt. of raw materials:
     brazil screen screen bark dry ext. 100~  120 parts, Kathu bar bark dry
     ext. 90~  110 parts, ginseng 60-70 share, ginkgo 20-30 share, L fine
     amino acid 1-2 share, winter fragrant mint 20~  30 parts, Ginseng Radix
     20-30 share, green tea 30-50 parts and fenugreek 40~  60 parts.  This can
     make the male penis increase dietary supplement by phys. conditioning,
     thinning and replenishing essence and marrow, so that the user's penis
     hardness He Chenbo frequency restore puberty level, thereby to cavernous
```

white film with greater pressure, achieve male penis natural gradually increased. The present invention also provides a method for prepg. the dietary supplement, firstly, wherein **Chinese medicine** vacuum drying treatment, then carry out twice **Chinese herbal medicine** through ceramic membrane, then conc. is loaded on carrier, not only beneficial ingredients, more effective, and easy to eat.

```
=> s l19 and l9
L24           0 L19 AND L9
```

Still no combination of Ginkgo (L19) and the pyridazinone

```
=> s l19 and l14
L25        2402 L19 AND L14
```

Combination of Ginkgo and cardio terms – possibly too big a set (although limiting to specific patent offices by priority date might reduce to manageable numbers)

```
=> s l22 and l14
L26         701 L22 AND L14
```

Combination of Ginkgo medicines and cardio terms

```
=> s l26 and p/dt
      15841639 P/DT
L27         639 L26 AND P/DT
```

So far I have not included any patent classifications as alternative search terms.
Returning to PatBase and my earlier answers [see Set 10 p3 above]. I browsed the results for suitable codes – item 1 pointed me to the following IPC code:

A61P9/00: Drugs for disorders of the cardiovascular system

There might be CPC equivalents but a quick scan failed to find this indexing

I conducted a Class Analysis on this set and found the following IPC code:

A61K36/16: Ginkgophyta, E.g. Ginkgoaceae (Ginkgo Family)

The Class Analysis for the US codes

424/752 - Containing Or Obtained From Ginkgo (E.g., Ginkgo Biloba, Maidenhair, Etc.)

For the Japanese F-terms I found the following codes:

4C088/ZA36: . .	Medicines for the organs of the circulatory system
4C088/ZA37: . . .	Myocardial stimulants
4C088/ZA38: . . .	Myocardial inhibitors
4C088/ZA39: . . .	Vasodilators
4C088/ZA40:	Coronary vasodilators
4C088/ZA41: . . .	Vasoconstrictors
4C088/ZA42: . . .	Hypotensive medications
4C088/ZA43: . . .	Hypertensive medications
4C088/ZA44: . . .	Agents for reinforcing the blood vessels
4C088/ZA45: . . .	Medications to combat arteriosklerosis

I also found a JP F-term code for GB

4C088:	Medicines containing plant substances
4C088/AB:	SPERMATOPHYTES AS THE ORIGIN OF ACTIVE COMPONENTS
4C088/AB00:	SPERMATOPHYTES AS THE ORIGIN OF ACTIVE COMPONENTS
4C088/AB01: .	Gymnospermae
4C088/AB02: . .	Ginkgo biloba

Returning to STN and the current session

```
FILE 'HCAPLUS' ENTERED AT 13:06:31 ON 16 SEP 2020

=> e a61p0009/ipc
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1           2           A61P0007-16/IPC
E2           1           A61P0007-22/IPC
E3      129133       --> A61P0009/IPC
E4           2           A61P0009-0/IPC
E5       60029    23     A61P0009-00/IPC
E6           1           A61P0009-001/IPC
E7           2           A61P0009-01/IPC
E8        2839     2     A61P0009-02/IPC
E9       11833     2     A61P0009-04/IPC
E10       8384     2     A61P0009-06/IPC
E11       8136     2     A61P0009-08/IPC
E12      66845     2     A61P0009-10/IPC
```

Using Expand command to check correct way to search for the IPC code of cardio treatments

```
=> s e3
L28     129133 A61P0009/IPC
```

This top level retrieves all the sub-classes under A61P9

```
=> s a61p0009/ipc,ecla,cpc
        129133 A61P0009/IPC
             0 A61P0009/ECLA
         78214 A61P0009/CPC
L29     133730 A61P0009/IPC,ECLA,CPC
```

Searching for A61P9 with IPC, ELCA and CPC codes

```
=> e 4c088/za36/fterm
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1         665     2     4C088/ZA33/FTERM
E2         267     2     4C088/ZA34/FTERM
E3        1395    10 --> 4C088/ZA36/FTERM
E4          64     2     4C088/ZA37/FTERM
E5          40     2     4C088/ZA38/FTERM
E6         122     3     4C088/ZA39/FTERM
E7         181     2     4C088/ZA40/FTERM
E8          11     2     4C088/ZA41/FTERM
E9         885     2     4C088/ZA42/FTERM
E10         25     2     4C088/ZA43/FTERM
E11        100     2     4C088/ZA44/FTERM
E12        860     2     4C088/ZA45/FTERM
```

I have used the expand command here to display the sequence of JP Terms that relate to "Medicines for the organs of the circulatory system"

```
=> s e3-e12
          1395 4C088/ZA36/FTERM
            64 4C088/ZA37/FTERM
            40 4C088/ZA38/FTERM
           122 4C088/ZA39/FTERM
           181 4C088/ZA40/FTERM
            11 4C088/ZA41/FTERM
           885 4C088/ZA42/FTERM
            25 4C088/ZA43/FTERM
           100 4C088/ZA44/FTERM
           860 4C088/ZA45/FTERM
L30       2400 (4C088/ZA36/FTERM OR 4C088/ZA37/FTERM OR 4C088/ZA38/FTERM OR
               4C088/ZA39/FTERM OR 4C088/ZA40/FTERM OR 4C088/ZA41/FTERM OR 4C08
               8/ZA42/FTERM OR 4C088/ZA43/FTERM OR 4C088/ZA44/FTERM OR 4C088/ZA
               45/FTERM)
```

Now can just select from the Expand list – no need to type all these codes separately

```
=> s A61K0036-16/ipc,ecla,cpc
          1888 A61K0036-16/IPC
           432 A61K0036-16/ECLA
          2906 A61K0036-16/CPC
L31       3883 A61K0036-16/IPC,ECLA,CPC
```
Search for IPC,CPC or ECLA codes for GB
```
=> e 424752/ncl
E#   FREQUENCY    AT     TERM
--   ---------    --     ----
E1        1053     2     424750000/NCL
E2         172     2     424751000/NCL
E3           0       --> 424752/NCL
E4         440     2     424752000/NCL
E5          53     2     424753000/NCL
E6         363     2     424754000/NCL
E7         319     2     424755000/NCL
E8         830     2     424756000/NCL
E9        1908     2     424757000/NCL
E10        282     2     424758000/NCL
E11         21     2     424759000/NCL
E12        344     2     424760000/NCL
=> s e4
L32        440 424752000/NCL
```
Expand and Search for US Patent Codes for GB
```
=> s 4c088/ab02/fterm
L33        227 4C088/AB02/FTERM
```
Search for FTerm for GB
```
=> s l29-l30
L34     133840 (L29 OR L30)
```
Combining all Cardi medicine codes
```
=> s l31-l33
L35       4009 (L31 OR L32 OR L33)
```
Combining all G biloba codes
```
=> s l35 and l9
L36          0 L35 AND L9
```
GB Codes + the pyridazinone terms
```
=> s l14 and l35
L37        548 L14 AND L35
```
GB Codes + the cardio terms
```
=> s l10 or l22 or l31-l33
L38      21120 L10 OR L22 OR (L31 OR L32 OR L33)
```
All the GB terms identified as potentially relevant = L33
```
=> s l38 and l34
L39       1969 L38 AND L34
```
GB terms + classification codes relating to cardio/circulatory treatments

I am not sure if the selection of all the codes under A61P9 is correct – I would discuss this with my patent attorney
```
=> s l18 or l27 or l37 or l39
L40       2559 L18 OR L27 OR L37 OR L39
```
Combination of all the GB + cardio combined sets
```
=> s (l40 and wo/pc) or (l40 and ep/pc) or (l40 and cn/pc) or (l40 and jp/pc) or
(l40 and de/pc) or (l40 and us/pc)
       2319369 WO/PC
       1722099 EP/PC
       6298137 CN/PC
       4890955 JP/PC
       1001660 DE/PC
       3858903 US/PC
L41       2528 (L40 AND WO/PC) OR (L40 AND EP/PC) OR (L40 AND CN/PC) OR (L40
               AND JP/PC) OR (L40 AND DE/PC) OR (L40 AND US/PC)
```

/PC = patent country code. I have searched for the 4 requested countries plus PCT applications and EP publications. I have not limited to designated states within PCT applications since today the default is to assign all countries signed up to the PCT treaty. I could have replaced EP with DE/DS where /DS = designated state field. However this would repeat the selection for (all) PCT applications as well as limiting the EP items.
The alternative to OR together all the countries of interest and then ANDing these with set L35 would have been much less efficient.

```
=> set range=1995,
SET COMMAND COMPLETED
```

This SET RANGE command limits to records adding to the database 1995 to date. Some early patent records in Chem Abs do not have a priority field so would be retrieved by my date selection without this limitation.

```
=> s l41 not pry.b<2000
       1197635 PRY.B<2000
L42       2415 L41 NOT PRY.B<2000
```

This NOT command excludes records with a basic priority year PRY.B earlier than 2000

```
=> s l42 not 20000101-20000731/prd.b
        147135 20000101-20000731/PRD.B
                  (20000101-20000731/PRD.B)
L43       2395 L42 NOT 20000101-20000731/PRD.B
```

This NOT command excludes records with a basic priority date PRD.B between January and July 2000

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

SET RANGE command removed.

Time has run out.
I would scan the selected titles to exclude the clearly irrelevant records. As the number of hits is high I would need to confirm with my attorney whether there were specific areas that could be excluded from my selection. Alternatively it might be decided to limit to the pill format.
The remainder could be scanned in more detail – either from Chem Abs records or more likely using the SEL PN.B command in combination with the item numbers in set L43. This gives E numbers which can be searched and captured and the listed numbers transferred to PatBase for checking.

The absence of any hits for 4-Ethoxy-2-methyl-5-(4-morpholinyl)-3(2H)-pyridazinone would also need to be discussed with my attorney. Possible options to check for any pharmaceuticals including this material or alternatively a broad (sub)structure search to check if it wasn't described in more generic terms.

I would also conduct a search in the Derwent World Patent Index database on STN.