

Extraction Gemini LLM Models

Gemini 3

Token 1: 1287
Token 2: 1210
Token 3: 1399

Token Average: 1299

Average correctly identified and named Main Steps: 11 / 12
Average correctly identified and named Sub Categories: 8.7 / 9

Extraction Output 1:

This document provides a detailed supply chain map for a pharmaceutical product.

Summary of the Slide

This slide presents a comprehensive and proprietary **Supply Chain Map** for the pharmaceutical product **DELSTRIGO / MK-1439A** (doravirine_lamivudine+tenofovir). The map illustrates the complete physical and financial flow of materials and products, from the initial sourcing of intermediate chemicals to the final distribution to various global markets. It details each stage of the process, including API manufacturing, formulation, packaging, and distribution, and identifies the specific company entities and locations involved at every step. The legend clarifies the different types of movements (physical, virtual, financial) and transactions (tolling) within the supply chain.

Chart: Supply Chain Map

This is a flowchart diagram that maps the supply chain for the product **DELSTRIGO / MK-1439A**.

Legend

The legend explains the color and line coding used in the diagram:

- | Item | Meaning |
- | **Black Box** | Physical Location |
- | **Black Line** | Physical Movement |
- | **Black Line (Trade step)** | Virtual Movement |
- | **Red Box** | Financial Transaction |
- | **Red Line** | Financial Transaction |
- | **Blue Box** | Toll For Transaction |
- | **Blue Line** | Tolling |

Supply Chain Stages and Flow

The supply chain is organized into the following sequential stages, moving from left to right

Main Steps
11 / 12 Main Steps identified (correct order)
11 / 12 Main Steps, correctly identified and named

- Intermediate**
- Trade step**
- Chemical (API)**
- Warehouse**
- Spray Drying**
- Formulation**
- Trade step**

- 8. **Packaging**
- 9. **Trade/DC step**
- 10. **Secondary Packaging**
- 11. **Market**

Detailed Flow Breakdown

The flow can be broken down into the manufacturing of the Active Pharmaceutical Ingredient (API) and the subsequent packaging and distribution to markets.

1. Intermediate Sourcing and API Manufacturing

- * **Intermediates** are sourced from various locations:
 - * **Betahistine (B)** -> MSD IE (Co. 1008) -> MSD IE (Co. 1047) -> **Doravirine**
 - * **Pyridine** -> MSD Singapore Trading (Co. 1068) -> **DIVIS (DP)**
 - * **HMT** -> Italy -> **FIS (DP)**
 - * **Pyridone and HMT** -> Laurus Labs (through ASH) -> India -> **Laurus Labs & ASH Ingredients (DP)** -> **Lamivudine & Tenofovir**
- * These intermediates and APIs are processed at the **Chemical (API)** stage:
 - * Doravirine, DIVIS (DP), and FIS (DP) are processed at **MSD IE (Co. 1008)** in Portugal.
 - * The output from the API stage is then sent for Spray Drying and Formulation.

2. Spray Drying, Formulation, and Initial Trade Steps

- * **Spray Drying** and **Formulation** both occur at **MSD IE (Co. 1008)** in Portugal.
- * The formulated product is then transferred through trade companies:
 - * From Formulation -> **MSDIE Trade Co (Co. 3008)**
 - * From MSDIE Trade Co (Co. 3008) -> **MSD IE, Netherlands (Co. 1047)** for US/Canada markets.
 - * From MSDIE Trade Co (Co. 3008) -> **MSD International GMBH (Co. 3008)** for other global markets.

3. Packaging and Distribution to Markets

The product is routed from the central trade companies to various packaging sites and then distributed to the final markets.

| Market | Packaging Site | Trade/DC Step |

| :--- | :--- | :--- |

Sub Categories
9 / 9 Sub Categories identified (correct order)
9 / 9 Sub Categories, correctly identified and named

- | **US Markets** | Merck Sharp & Dohme (Co. 1000) | Merck Sharp & Dohme (Co. 1000) | # 1
- | **Canada Markets** | LSL BIOTECHNOLOGIE (Co. 1044) | Merck Canada Inc. (Co. 1014) | # 2
- | **EMEA Markets** | Merck Sharp & Dohme BV, Netherlands (Co. 1017) | MSD BV (Co. 1017) | # 3
- | **Latin America Markets** | **(Routed from EMEA)** | MSD Latin America (Co. 1012) | # 4
- | **Russia Market** | Akrikhin, Russia (Co. 1032) | MSD Pharmaceuticals (Co. 1032) | # 5
- | **AP Markets** | Takeda, Japan (Co. 1013) | MSD Asia Pacific Svcs (Co. 1031) | # 6
- | **S. Africa Markets** | MSD (Pty) Ltd, South Africa (Co. 1028) | Adcock Ingram BV (Co. 1028) | # 7
- | **AP Markets**
 (Australia, Korea, Singapore, Taiwan, Hong Kong) | MSD Asia Pacific Svcs (Co. 1031) | MSD Asia Pacific Svcs (Co. 1031) | # 8
- | **Indonesia Markets** | PT Organon Pharma Indonesia Tbk (Co. 1030) | PT MSD Indonesia (Co. 1030) | # 9

Extraction Output 2:

This document provides a detailed supply chain map for a pharmaceutical product.

Summary of the Slide

This slide presents a comprehensive and proprietary Supply Chain Map for the pharmaceutical product DELSTRIGO / MK-1439A (doravirine, lamivudine, and tenofovir). The map depicts the complete physical and financial flow of materials and products, beginning with the sourcing of intermediate chemicals and extending through final distribution to global markets. It outlines all major process stages, including API manufacturing, formulation, packaging, and distribution, and specifies the company entities and locations involved at each stage. The legend explains the various types of flows (physical, virtual, financial) and transactions (tolling) represented within the supply chain.

Chart: Supply Chain Map

This is a flowchart diagram that maps the supply chain for the product **DELSTRIGO / MK-1439A**.

Legend

- | Item | Meaning |
- | :--- | :--- |
- | **Black Box** | Physical Location |
- | **Black Line** | Physical Movement |
- | **Black Line (Trade step)** | Virtual Movement |
- | **Red Box** | Financial Transaction |
- | **Red Line** | Financial Transaction |
- | **Blue Box** | Toll For Transaction |
- | **Blue Line** | Tolling |

Supply Chain Stages and Flow

The supply chain is organized into the following sequential stages, moving from left to right:

Main Steps
11 / 12 Main Steps identified (correct order)
11 / 12 Main Steps, correctly identified and named

1. **Intermediate**
2. **Trade step**
3. **Chemical (API)**
4. **Warehouse**
5. **Spray Drying**
6. **Formulation**
7. **Trade step**
8. **Packaging**
9. **Trade/DC step**
10. **Secondary Packaging**
11. **Market**

Detailed Flow Breakdown

The flow can be broken down into the manufacturing of the Active Pharmaceutical Ingredient (API) and the subsequent packaging and distribution to markets.

1. Intermediate Sourcing and API Manufacturing

- * **Intermediates** are sourced from various locations:
 - * **Betahistine (B)** -> MSD IE (Co. 1008) -> MSD IE (Co. 1047) -> **Doravirine**
 - * **Pyridine** -> MSD Singapore Trading (Co. 1068) -> **DIVIS (DP)**
 - * **HMT** -> Italy -> **FIS (DP)**
 - * **Pyridone and HMT** -> Laurus Labs (through ASH) -> India -> **Laurus Labs & ASH Ingredients (DP)** -> **Lamivudine & Tenofovir**
- * These intermediates and APIs are processed at the **Chemical (API)** stage:
 - * Doravirine, DIVIS (DP), and FIS (DP) are processed at **MSD IE (Co. 1008) in Portugal**.
 - * The output from the API stage is then sent for Spray Drying and Formulation.

2. Spray Drying, Formulation, and Initial Trade Steps

- * **Spray Drying** and **Formulation** both occur at **MSD IE (Co. 1008) in Portugal**.
- * The formulated product is then transferred through trade companies:
 - * From Formulation -> **MSDIE Trade Co (Co. 3008)**
 - * From MSDIE Trade Co (Co. 3008) -> **MSD IE, Netherlands (Co. 1047)** for US/Canada markets.
 - * From MSDIE Trade Co (Co. 3008) -> **MSD International GMBH (Co. 3008)** for other global markets.

3. Packaging and Distribution to Markets

The product is routed from the central trade companies to various packaging sites and then distributed to the final markets.

| :--- | :--- | :--- |

Sub Categories
8 / 9 Sub Categories identified (correct order)
8 / 9 Sub Categories, correctly identified and named

- | **US Markets** | Merck Sharp & Dohme (Co. 1000) | Merck Sharp & Dohme (Co. 1000) | # 1
- | **Canada Markets** | LSL BIOTECHNOLOGIE (Co. 1044) | Merck Canada Inc. (Co. 1014) | # 2
- | **EMEA Markets** | Merck Sharp & Dohme BV, Netherlands (Co. 1017) | MSD BV (Co. 1017) | # 3
- | **Latin America Markets** | **_(Routed from EMEA)_** | MSD Latin America (Co. 1012) | # 4
- | **Russia Market** | Akrikhin, Russia (Co. 1032) | MSD Pharmaceuticals (Co. 1032) | # 5
- | **AP Markets** | Takeda, Japan (Co. 1013) | MSD Asia Pacific Svcs (Co. 1031) | # 6
- | **AP Markets**
 (Australia, Korea, Singapore, Taiwan, Hong Kong) | MSD Asia Pacific Svcs (Co. 1031) | MSD Asia Pacific Svcs (Co. 1031) | # 7
- | **Indonesia Markets** | PT Organon Pharma Indonesia Tbk (Co. 1030) | PT MSD Indonesia (Co. 1030) | # 8

Extraction Output 3:

Of course. Here is the extracted information from the document page, formatted for clarity and use in a Retrieval-Augmented Generation (RAG) model.

Slide Summary

This slide provides a detailed and proprietary **Supply Chain Map** for the pharmaceutical product **DELSTRIGO / MK-1439A** (doravirine_lamivudine+tenofovir). The map illustrates the current physical and financial supply chain, tracing the product's journey from the sourcing of intermediate chemicals to its final distribution across various global markets. It uses a color-coded system to distinguish between physical locations, material movements, financial transactions, and tolling agreements.

**Text Content

Proprietary

Supply Chain Map:

Physical & Financial Supply Chain

DELSTRIGO / MK-1439A

(doravirine_lamivudine+tenofovir)

Current

**Chart Description

The image displays a complex flowchart that maps the supply chain for the drug DELSTRIGO / MK-1439A.

**Legend

The legend explains the symbols used in the flowchart:

Symbol	Meaning
:-- :--	
Black Box	Physical Location
Black Line	Physical Movement
Black Line (Trade step)	Virtual Movement
Red Box	Financial Transaction
Red Line	Financial Transaction
Blue Box	Toll For
Blue Line	Toll For Transaction
Dotted Line	Testing

**Supply Chain Flow

The supply chain is organized into sequential stages, from raw material sourcing to market delivery.

- # Main Steps
- # 11 / 12 Main Steps identified (correct order)
- # 11 / 12 Main Steps, correctly identified and named

1. Intermediate Sourcing # 1

- **Betahistine (B):** Sourced from MSD IE (Co. 1008).
- **Pyridine:** Sourced from India and supplied to DIVIS (DP).
- **HMT:** Sourced from Italy and supplied to DIVIS (DP).
- **FIS (DP):** Sourced from Italy.

- **Pyridine and HMT:** Sourced for Laurus Labs (through ASH).
- **Lamivudine and Tenofovir:** Sourced for Laurus Labs & ASH Ingredients (DP).

2. Chemical (API) Manufacturing # 2

- **doravirine:** Produced by MSD IE (Co. 1747) using Betahistine (B) and materials from DIVIS (DP).
- **Doravirine-Pure:** Produced by FIS (DP).
- **Lamivudine & Tenofovir:** Produced by Laurus Labs & ASH Ingredients (DP) in India.

3. Warehouse # 3

- API is stored at MSD IE - Swords/Ballydine (Co. 1008) and MSD Oss BV (Co. 1908).

4. Spray Drying # 4

- This process creates Spray Dried Doravirine.
- It occurs at multiple locations:
 - Portugal (PT) Plant 1029 (tolled for MSD IE Co. 1008)
 - MSD IE (Co. 1747)
 - MSD Oss BV (Co. 1908)

5. Formulation # 5

- The final drug formulation takes place at:
 - Portugal (PT) Plant 1029 (tolled for MSD IE Co. 1008)
 - MSD IE (Co. 1747)

6. Trade Steps & Distribution # 6,7 mentioned two steps in one

- The formulated product moves through various trading entities for global distribution:
 - MSDIE TradeCo IE (Co. 1008)
 - MSD International GmbH (Co. 3000)
 - MSD Asia Pacific Svcs Pte (Co. 9031)

7. Packaging # 8

- The product is packaged at several sites, often managed by different corporate entities:
 - **Haarlem (NL) Plant 1014:** For MSD Oss BV (Co. 1908), serving EMEA Markets.
 - **Merck Sharp & Dohme Corp (Co. 1000):** Serves US Markets.
 - **Cramlington (UK) Plant 1701:** For MSD Ltd (Co. 1700), serving EMEA Markets.
 - **Wilson (US) Plant 1013:** For Merck Sharp & Dohme Corp (Co. 1000), serving US Markets.
 - **South Africa (ZA) Plant 1102:** For MSD (Pty) Ltd (Co. 1101), serving S. Africa Markets.
 - **Indonesia (ID) Plant 1015:** For PT Organon Pharma Indonesia Tbk (Organon Co. 3001), serving AP Markets.
 - **Jakarta, Indonesia Plant 1015:** For PT MSD Indonesia (Co. 1000), serving Indonesia Markets.

8. Trade/DC Step # 9

9. Secondary Packaging # 10

- Packaged goods are routed through distribution centers and trading companies before reaching the final market. Key entities include:
 - **Merck Sharp & Dohme Corp (Co. 1000):** To US Markets.
 - **LSM SWORDWALK & Merck Canada Inc. (Co. 1114):** To Canada Markets.

- **MSD Latin America LLC (Co. 1412):** To Latin America Markets.
- **Russia (RU) Plant 1016 & ALIUM (Co. 1000):** To Russia Market.
- **MSD Asia Pacific Svcs Pte (Co. 9031):** To AP Markets.
- **PT Organon Pharma Indonesia Tbk:** To AP Markets (Australia, Korea, Singapore, Taiwan, Hong Kong).
- **PT MSD Indonesia (Co. 1000):** To Indonesia Markets.

****10. Final Markets**** # 11

- The product is ultimately delivered to the following global markets:

Sub Categories

8 / 9 Sub Categories identified (correct order)

8 / 9 Sub Categories, correctly identified and named

- **US Markets** # 1
- **Canada Markets** # 2
- **EMEA Markets** # 3
- **Latin America Markets** # 4
- **Russia Market** # 5
- **AP Markets** # 6
- **S. Africa Markets** # 7
- **AP Markets** # 8
- **Indonesia Markets** # 9

Gemini 2.5 Pro

Token Output 1: 1287
Token Output 2: 1020
Token Output 3: 1084

Token Average: 1130

Average correctly identified and named Main Steps: 8.3 / 12
Average correctly identified and named Sub Categories: 8.7 / 9

Extraction Output 1:

This document provides a detailed visual representation of a product's supply chain.

Supply Chain Map

This is a flowchart diagram illustrating the physical and financial supply chain for the product ****DELSTRIGO / MK-1439A**** (doravirine_lamivudine+tenofovir). The map shows the "Current" state of the supply chain.

Legend

The legend explains the color-coding and shapes used in the diagram:

- | Item | Description |
- | :--- | :--- |
- | ****Black Box**** | Physical Location |
- | ****Black Line**** | Physical Movement |
- | ****Black Line (Trade step)**** | Virtual Movement |
- | ****Red Box**** | Financial Transaction |
- | ****Red Line**** | Financial Transaction |
- | ****Blue Box**** | Toll For Transaction |
- | ****Blue Line**** | Tolling |

Supply Chain Flow

The map is organized into sequential stages from left to right, starting with raw materials and ending with market delivery.

****Stages:****

- # Main Steps**
- # 11 / 12 Main Steps identified (correct order)**
- # 11 / 12 Main Steps, correctly identified and named**

1. Intermediate
2. Trade step
3. Chemical (API)
4. Warehouse
5. Spray Drying
6. Formulation
7. Trade step
8. Packaging
9. Trade/DC step
10. Secondary Packaging

11. Market

Detailed Flow Description:

The supply chain begins with the sourcing of several intermediate chemicals:

* **Intermediates & API Production:**

- * **Doravirine**: Sourced from MSD IE Ballydine (Co. 1747, Ireland).
- * **DIVIS (DP)**: Sourced from India.
- * **HMT & FIS (DP)**: Sourced from Italy.
- * **Lamivudine & Tenofovir**: Sourced from Laurus Labs & ASH Ingredients (DP) in India.
- * These intermediates are processed into Active Pharmaceutical Ingredients (API) at various sites, including MSD IE Ballydine (Ireland) and facilities in Italy.

* **Spray Drying & Formulation:**

- * The API undergoes spray drying and formulation at several locations, primarily:
 - * Portugal (PT) Plant 1029
 - * MSD IE Ballydine (Co. 1747, Ireland)
 - * Warehousing for these materials occurs at MSD facilities in Ireland (Swords/Ballydine) and the Netherlands (Oss/Haarlem).

* **Packaging & Distribution to Markets:**

- * After formulation, the product is sent for packaging and distribution through a series of trade steps involving entities like MSD International GmbH (Co. 3000).
- * The final product is packaged and distributed to various global markets from multiple sites. The flow for each major market is outlined below:

| Packaging Site | Distribution Center (DC) | Final Market |

| :--- | :--- | :--- |

Sub Categories

9 / 9 Sub Categories identified (correct order)

9 / 9 Sub Categories, correctly identified and named

| Merck Sharp & Dohme Corp (Co. 1000) | Merck Sharp & Dohme Corp (Co. 1000) | **US Markets** | # 1

| MSD IE Swords/Ballydine (Co. 1747) | LSH SHERBROOKE / Merck Canada Inc. (Co. 1944) | **Canada Markets** | # 2

| Haarlem (NL) Plant 1014 | - | **EMEA Markets** | # 3

| MSD Netherlands BV (Co. 1900) | MSD Latin America (Co. 1932) | **Latin America Markets** | # 4

| - | Russia (RU) Plant 1015 / ALMACO (RU) Plant 1015 | **Russia Market**_(Effective 2022)_ | # 5

| Takeda (IE) Plant 1013 | Takeda (IE) Plant 1013 | **AP Markets** | # 6

| - | South Africa (ZA) Plant 1027 / MSD (Pty) Ltd (Co. 1932) | **S. Africa Markets** | # 7

| MSD Asia Pacific Svcs Pte (Co. 1931) | MSD Asia Pacific Svcs Pte (Co. 1931) | **AP Markets** (Australia, Korea, Singapore, Taiwan, Hong Kong) | # 8

| PT Organon Pharma Indonesia Tbk / Jubilant, Indonesia | PT MSD Indonesia (Co. 1000) | **Indonesia Markets** | # 9

Summary of the Slide

This slide presents a **proprietary supply chain map** for the pharmaceutical product **DELSTRIGO / MK-1439A**. The flowchart provides a comprehensive, step-by-step visualization of the entire manufacturing and distribution process, from the sourcing of raw chemical intermediates to the delivery of the final product to global markets. The map details a complex, international supply chain involving numerous company sites and third-party contractors across Ireland, India, Italy, Portugal, the Netherlands, and other countries. It clearly distinguishes between physical product movement, financial transactions, and tolling agreements using a color-coded legend. Key stages illustrated include API production, spray drying, formulation, packaging, and final distribution to markets in the US, Canada, EMEA, Latin America, Russia, Asia-Pacific, and Africa.

Extraction Output 2:

Here is the extracted information from the document page.

Summary of the Slide

This slide provides a detailed **Supply Chain Map** for the pharmaceutical product **DELSTRIGO / MK-1439A** (doravirine_lamivudine+tenofovir). The map is a flowchart that illustrates the complete physical and financial supply chain, from the sourcing of intermediate raw materials to the final distribution to various global markets. It uses a color-coded legend to differentiate between physical locations, physical movement of goods, virtual/financial transactions, and tolling agreements. The chain involves multiple international entities and locations, highlighting the complexity of the product's manufacturing and distribution network, which serves markets including the US, Canada, EMEA, Latin America, Russia, South Africa, and the Asia-Pacific region.

Chart: Supply Chain Map

This is a detailed flowchart diagram illustrating the physical and financial supply chain for the product DELSTRIGO / MK-1439A.

Legend

The legend explains the symbols used in the flowchart:

Symbol	Meaning
:---	:---
Black Box	Physical Location
Black Line	Physical Movement
Black Line (Trade step)	Virtual Movement
Red Box	Financial Transaction
Red Line	Financial Transaction
Blue Box	Toll For Transaction
Blue Line	Tolling

Main Steps
7 / 12 Main Steps identified (correct order)
7 / 12 Main Steps, correctly identified and named

Supply Chain Flow

The supply chain is organized into sequential stages, starting from raw materials and ending with market distribution.

1. Intermediate & Chemical (API) Sourcing # 1, 2

The process begins with sourcing several intermediate chemicals from various suppliers:

- **Betahydrine (R)**: Sourced from MSD IE (Ballydine), Co. 1547.
- **Pyridine & HMT**: Sourced from India and Italy.
- **DIVIS (3P) & FIS (3P)**: Third-party suppliers.
- **Lamivudine & Tenofovir (TDF)**: Sourced from Laurus Labs & ASH Ingredients (3P) in India.

These intermediates are used in the **Chemical (API)** synthesis stage to produce **doravirine** and **Doravirine-Pure** at facilities including:

- MSD IE (Ballydine), Ireland (Plant 1009)
- FIS (3P), Italy

****2. Warehouse, Spray Drying, and Formulation**** # 3, 4, 5

- The API is held at a ****Warehouse**** (MSD IE Doravirine BV, Co. 1900).
- ****Spray Drying**** occurs at multiple sites: Portugal (Plant 1029), Ballydine (Plant 1009), and Italy (Plant 1162).
- ****Formulation**** of the final product (combining doravirine with lamivudine and tenofovir) takes place at facilities in Portugal, Ballydine, and Italy.

****3. Packaging, Distribution, and Market**** # 6, 7

From the formulation sites, the product is distributed globally through a series of packaging, trade, and distribution center (DC) steps to reach the final markets.

| Final Market | Supply Path from Formulation |

| :--- | :--- |

Sub Categories

9 / 9 Sub Categories identified (correct order)

9 / 9 Sub Categories, correctly identified and named

| ****US Markets**** | Formulation (Portugal/Ballydine) -> MSD Intl. GmbH -> Packaging (Merck Sharp & Dohme Corp, US) -> US Secondary Packaging -> Market | # 1

| ****Canada Markets**** | Formulation (Portugal/Ballydine) -> MSD Intl. GmbH -> Packaging (Merck Sharp & Dohme Corp, US) -> Secondary Packaging (LSH Sherbrooke, Canada) -> Market | # 2

| ****EMEA Markets**** | Formulation (Portugal) -> Packaging (Haarlem, NL, Plant 1014) -> MSD Netherlands BV -> Market | # 3

| ****Latin America Markets**** | Formulation (Portugal) -> MSD Intl. GmbH -> Trade/DC (MSD Latin America MRL) -> Market | # 4

| ****Russia Market**** | Formulation (Italy) -> Packaging (ALMAKO CJSC, Russia) -> MSD Pharmaceuticals -> Market | # 5

| ****AP Markets**** | Formulation (Italy) -> Packaging (Takeda, IE, Plant 1013) -> MSD Asia Pacific Svcs -> Market | # 6

| ****S. Africa Markets**** | Formulation (Italy) -> Packaging (South Africa, Plant 1180) -> MSD Intl. GmbH -> Market | # 7

| ****Australia, Korea, Singapore, Taiwan, Hong Kong**** | Formulation (Italy) -> MSD Intl. GmbH -> Trade/DC (MSD Asia Pacific Svcs) -> PT Organon Pharma Indonesia -> Market | # 8

| ****Indonesia Markets**** | Formulation (Italy) -> MSD Intl. GmbH -> Trade/DC (MSD Asia Pacific Svcs) -> PT MSD Indonesia -> Market | # 9

Extraction Output 3:

Based on the provided document page, here is a detailed extraction and summary of the information.

Proprietary

Supply Chain Map:

This document displays a detailed flowchart illustrating the physical and financial supply chain for the product **DELSTRIGO / MK-1439A** (doravirine_lamivudine+tenofovir). The map is labeled as **Current**.

Chart Description

The image contains a complex flowchart that maps the entire supply chain, from the sourcing of intermediate chemicals to the delivery of the final product to various global markets.

Legend

The legend explains the symbols used in the flowchart:

Symbol	Meaning
:-- :--	
Black Box	Physical Location
Black Line	Physical Movement
Black Line (Trade step)	Virtual Movement
Red Box	Financial Transaction
Red Line	Financial Transaction
Blue Box	Toll For
Blue Line	Toll For Transaction
Dotted Line	Testing

Supply Chain Stages and Flow

The supply chain is organized into sequential stages, moving from left to right:

- # Main Steps
- # 7 / 12 Main Steps identified (correct order)
- # 7 / 12 Main Steps, correctly identified and named

1. **Intermediate & Chemical (API) Production:** # 1, 2, 3

- Doravirine:**
 - An intermediate is produced at **MSD IE (Ballydine)**.
 - It is traded through **MSD Singapore Trading Pte**.
 - The API is manufactured by **Shasun (P)** in India.
- Lamivudine & Tenofovir:**
 - Intermediates are sourced from **Laurus Labs & ASH Ingredients (3P)** in India.
- Other Intermediates:**
 - DIVIS (3P)**, **HMT** (to Italy), **FIS (3P)**, and **Pyridone and HMT** are also listed as sources for intermediates and APIs.

2. **Warehouse, Spray Drying & Formulation:** # 4, 5

- APIs are consolidated in warehouses at **MSD IE (Ballydine)** and **MSD IE - Swords/Brinny**.
- Spray drying and formulation occur at multiple sites:

- * **Portugal (P)**
- * **MSD IE (Ballydine)**
- * **Italy**
- * **MSD IE - Swords/Brinny** (Spray Drying only)

3. **Packaging, Distribution, and Market:** # 6, 7

Sub Categories

8 / 9 Sub Categories identified (correct order)

8 / 9 Sub Categories, correctly identified and named

- * **To US & Canada Markets:** # 1, 2
 - * **Trade:** MSDI Trade Co GmbH -> MSD International GmbH
 - * **Packaging:** Merck Sharp & Dohme (US)
 - * **Distribution:**
 - * Merck Sharp & Dohme -> **US Markets**
 - * LSH SHERBROOKE -> **Canada Markets**
- * **To EMEA, Latin America & Russia Markets:** # 3, 4, 5
 - * **Trade:** MSDI Trade Co GmbH
 - * **Packaging:** Haarlem (NL)
 - * **Distribution:**
 - * MSD Netherlands BV -> **EMEA Markets**
 - * MSD Latin America -> **Latin America Markets**
 - * Russia (P), ALIUM (P), MSD Pharmaceuticals (Effective 2022) -> **Russia Market**
- * **To South Africa Markets:** # 6
 - * **Trade:** MSDI Trade Co GmbH
 - * **Packaging:** South Africa (P), Aspen Pharmacare
 - * **Distribution:** MSD South Africa (Pty) Ltd -> **S. Africa Markets**
- * **To Asia-Pacific (AP) & Indonesia Markets:** # 7, 8
 - * **Trade:** MSD Asia Pacific Svcs
 - * **Packaging:**
 - * Trade (AU) -> for AP Markets
 - * Trade (Indonesia), PT Organon Pharma Indonesia Tbk -> for Indonesia Market
 - * **Distribution:**
 - * MSD Asia Pacific Svcs -> **AP Markets** (Australia, Korea, Singapore, Taiwan, Hong Kong)

Slide Summary

This slide provides a comprehensive visual map of the current global supply chain for the pharmaceutical product **DELSTRIGO / MK-1439A**. It details the end-to-end process, starting from the procurement of raw chemical intermediates from various third-party (3P) and internal sites, through the manufacturing of the Active Pharmaceutical Ingredient (API), formulation, and final packaging. The map highlights a multi-faceted global strategy, with key manufacturing and formulation hubs located in Ireland, Portugal, and Italy. The distribution network is segmented by region, with dedicated packaging and distribution centers serving North America (US, Canada), EMEA (Europe, Middle East, Africa), Latin America, Russia, South Africa, Asia-Pacific, and Indonesia. The flowchart uses a detailed legend to differentiate between physical product movements, financial transactions, physical locations, and tolling agreements, providing a clear overview of both the physical and financial flows within the supply chain.