

WHY INVEST IN TURKISH PHARMACEUTICALS INDUSTRY?

AGENDA

1 Executive Summary

2 Turkish
Pharmaceuticals
Industry Outlook

Growth Drivers in Turkey

Opportunities in
Turkish Pharmaceuticals
Industry

Site Assessment

5



TURKEY HAS A GROWING PHARMA INDUSTRY OFFERING OPPORTUNITIES IN MANY AREAS...

FAVORABLE INVESTMENT ENVIRONMENT



- Strong macroeconomic growth with increasing income per capita and a bourgeoning middle class
- Favorable demographics with a dynamic, young and skilled talent pool supporting the industry
- Increasing life expectancy and spending in healthcare
- Strong government support through manufacturing and R&D incentives

ROBUST GROWTH IN THE SECTOR



- With Healthcare Transformation Program and Universal Healthcare Insurance launched in 2003, Turkish government assures free healthcare coverage to 95% of the population
- Turkish pharmaceuticals market has seen a robust growth over the past decade – ranks 18th largest in the World with \$7.7 Billion in value
 - Export opportunities due to Turkey's proximity to regional markets

LUCRATIVE OPPORTUNITIES IN SUB-SECTORS



- Turkey's localization program in action to reduce import dependency and increase local production
- Heavy investments in healthcare infrastructure and services
- Strong government support for biotechnology
- Ideal location for clinical trials and a favorable regulatory environment aligned with international standards

STRONG INTERNATIONAL PRESENCE



- Global pharmaceutical companies have been present in Turkey with significant manufacturing activities, using Turkey as a hub to access regional markets
- Successful partnerships with local companies to grow in the region, capitalizing on locals' experience and networks

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TURKISH PHARMACEUTICALS MARKET

TURKISH PHARMACEUTICALS MARKET IS THE 18TH LARGEST IN THE WORLD WITH ~\$8BN VALUE

Global Top 20 Countries Ranking and Invoice Spending Relative to United States

RANK		2014	% OF U.S.	RANK	2019	% OF U.S.	RANK	2024	% OF U.S.
1		United States	100.0%	1	United States	100.0%	1	United States	100.0%
2	Λ	China	26.6%	2	China	27.9%	2	China	29.7%
3	V	Japan	21.2%	3	Japan	16.9%	3	Japan	13.2%
4		Germany	10.6%	4	Germany	10.2%	4	Germany	10.3%
5		France	8.4%	5	France	6.8%	5	Brazil	7.5%
6		Italy	6.4%	6	Italy	6.5%	6	Italy	6.4%
7	2	United Kingdom	5.7%	7	▲ Brazil	6.3%	7	France	5.9%
8	A	Brazil	5.1%	8	United Kingdom	5.6%	8	United Kingdom	5.7%
9	2	Spain	4.7%	9	Spain	4.8%	9	🛕 India	5.5%
10	2	Canada	4.5%	10	Canada	4.3%	10	Spain	4.7%
11	2	India	3.4%	11	India	4.3%	11	V Canada	4.5%
12	2	South Korea	3.0%	12	South Korea	3.1%	12	🛕 Russian Fed.	4.1%
13	A	Russian Fed.	2.7%	13	Russian Fed.	3.1%	13	V South Korea	3.4%
14	2	Australia	2.6%	14	Australia	2.4%	14	🛕 Argentina	3.0%
15	V	Mexico	2.0%	15	Mexico	2.3%	15	Mexico	2.7%
16	A	Argentina	1.8%	16	Saudi Arabia	1.7%	16	1 Turkey	2.4%
17	5	Saudi Arabia	1.8%	17	Poland	1.6%	17	Australia	2.3%
18	Λ	Poland	1.5%	18	1 Turkey	1.5%	18	Saudi Arabia	1.8%
19	Λ	Belgium	1.4%	19	Belgium	1.3%	19	Poland	1.6%
20	4	Netherlands	1.3%	20	4 Argentina	1.3%	20	£ Egypt	1.6%

GLOBAL MEDICINE SPENDING TO EXCEED \$1.1 TRILLION BY 2024

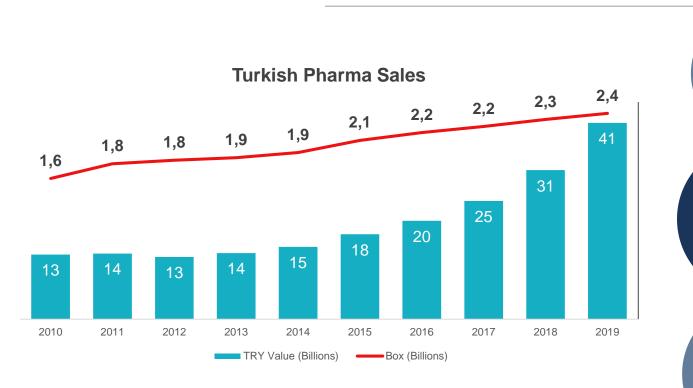
DEVELOPED
MARKETS
EXPECTED TO
GROW BY 1-4%
WHEREAS
EMERGING
MARKETS TO
GROW BY 5-8%





Source: IEIS

TURKISH PHARMACEUTICALS MARKET HAS EXPERIENCED A 3X GROWTH SINCE 2010 TO REACH 41 BILLION TRY



6

REIMBURSEMENT RATE OF 95.8%

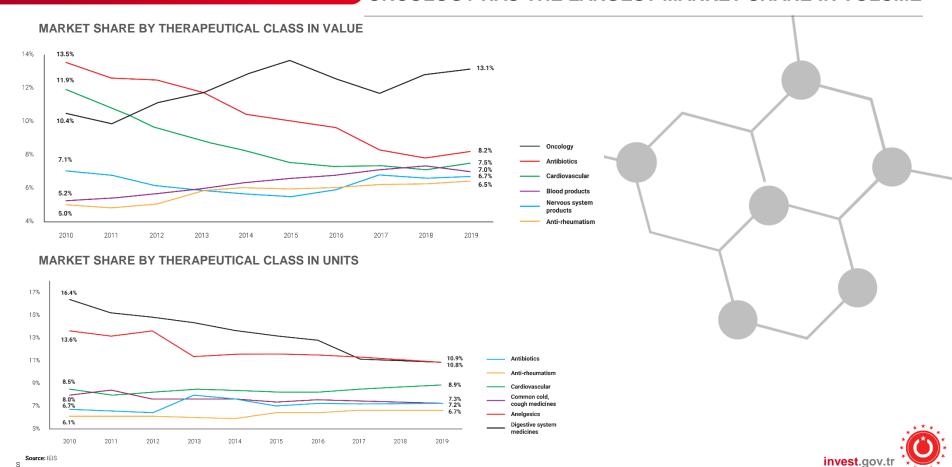
ORIGINATOR
DRUGS DOMINATE
MARKET WITH
66% SHARE IN
VALUE AND
39% IN UNITS

IMPORTED DRUGS HAVE 48% MARKET SHARE IN VALUE, 12% IN UNITS



TURKISH PHARMACEUTICALS MARKET

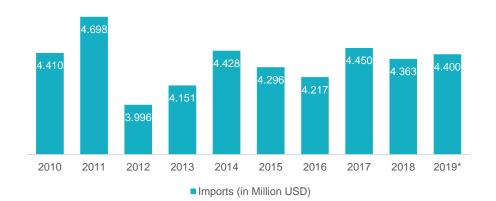
80% OF PRESCRIPTIONS ARE CLASSICAL DRUGS – ONCOLOGY HAS THE LARGEST MARKET SHARE IN VOLUME

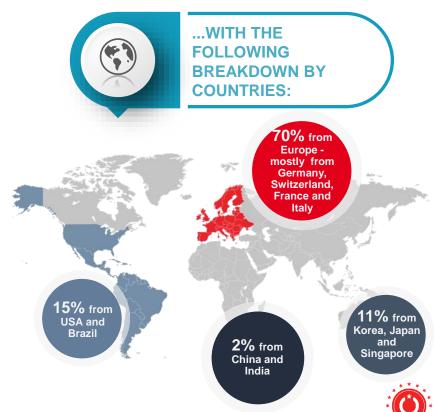


TURKEY IMPORTS USD 4.4 BILLION – 48% OF THE TOTAL MARKET – AND NOW IS THE 26TH LARGEST IMPORTER IN THE WORLD



TURKEY MOSTLY IMPORTS ORIGINATOR DRUGS, VACCINES, BLOOD PRODUCTS, BIODRUGS...





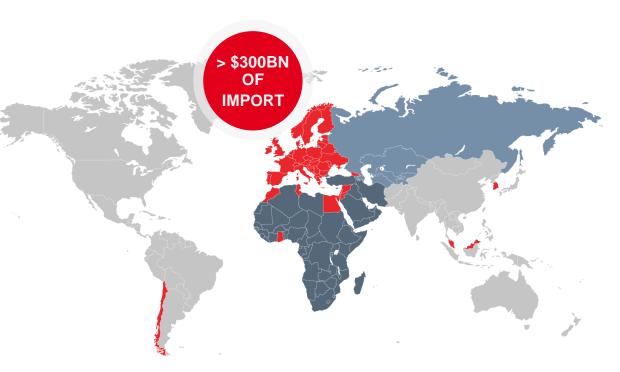
invest.gov.t

Source: UN Comtrade HS Code 30

PROXIMITY TO KEY MARKETS

TURKEY IS WELL CONNECTED WITH THE REGION THROUGH CUSTOMS UNION WITH THE EU AND FREE TRADE AGREEMENTS WITH 28 COUNTRIES

TURKEY HAS
GEOGRAPHICAL
PROXIMITY TO SOME
OF THE HIGHEST
IMPORT MARKETS IN
PHARMACEUTICALS
AND IS CONVENIENTLY
POSITIONED AS A
MANAGING AND
MANUFACTURING HUB





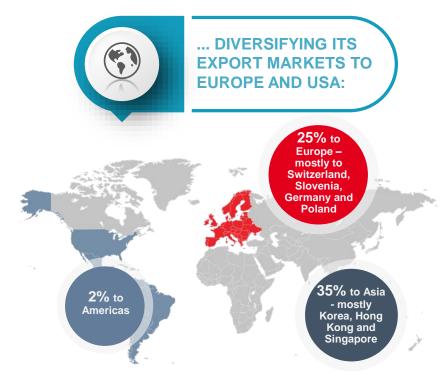
TURKEY'S PHARMA EXPORTS MORE THAN DOUBLED SINCE 2010 – AN IMPRESSIVE 60% GROWTH IN THE LAST TWO YEARS



TURKEY EXPORTS TO 169
COUNTRIES – HALF OF THE
EXPORTS IS TO MENA
AND CIS COUNTRIES...

60% growth in 2 years







10

TURKEY IS HOME TO A TOTAL OF 83 PHARMACEUTICAL AND 11 RAW MATERIAL PRODUCTION FACILITIES



TURKEY HAS BEEN A FULL MEMBER OF PIC/S SINCE 2018. ICH SINCE MAY 2020.



THERE ARE 80 PHARMA MANUFACTURING COMPANIES; 20 OF WHICH ARE MULTINATIONALS

12K PRODUCTS

OVER 38K EMPLOYEES

34 **ACCREDITED R&D CENTERS**

92 **OUT OF TOP100 PHARMA COMPANIES ARE IN TURKEY**























































Source: IEIS_TITCK

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TRACK RECORD GROWTH AND BRIGHT FUTURE WITH PROVEN RESILIENCE WITH USD 754 BILLION GDP

13TH LARGEST ECONOMY IN THE WORLD



AVERAGE ANNUAL GDP GROWTH (%), 2003-2019











2003-2019

TURKEY

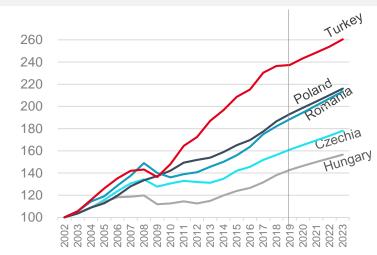
POLAND

ROMANIA CZECHIA HUNGARY

RANKING OF ECONOMIES BY GDP AT PPP



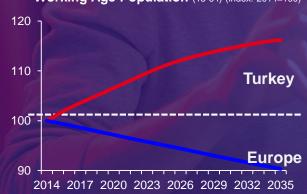
REAL GDP GROWTH (INDEX: 2002=100)



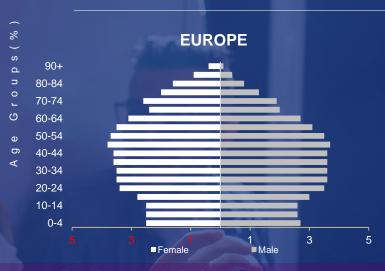
FAVORABLE DEMOGRAPHICS

% **TURKEY** 90+ d Life 80-84 expectancy 70-74 at 78 years 60-64 50-54 40-44 30-34 20-24 10-14 0-4 3 ■Female ■ Male

Working Age Population (15-64) (Index: 2014=100)



...HALF OF POPULATION AT AGE 32



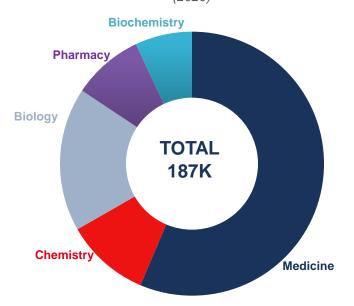
Total Dependency Ratio (%, Age 0-14 & 64)/Age 15-64)



14

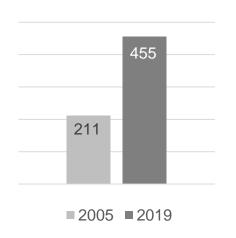
TURKEY'S EDUCATION SYSTEM UPGRADED TO SUPPORT A SKILLED LABOR POOL..

UNDERGRADUATE & GRADUATE ENROLLMENT IN RELATED FIELDS (2020)

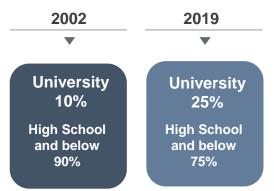


NUMBER OF GRADS FROM VOCATIONAL & TECHNICAL HIGH SCHOOLS

(in thousands)



LABOR FORCE BY EDUCATION LEVEL

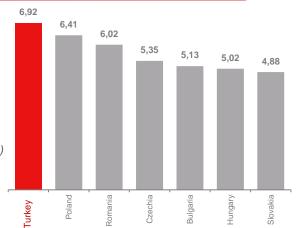


SKILLED & COST-COMPETITIVE LABOR FORCE



AVAILABILITY OF QUALIFIED ENGINEERS, 2020

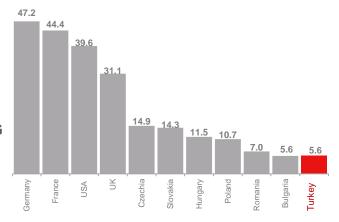
(10=Available; 0=Unavailable)



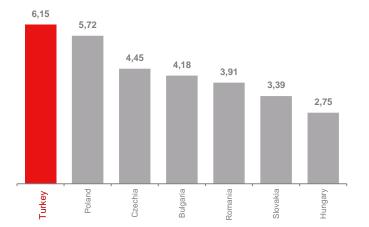


LABOR COST PER HOUR IN MANUFACTURING

(\$), 2018



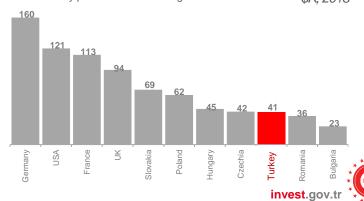
AVAILABILITY OF COMPETENT SENIOR MANAGERS, 2020 (10=Available; 0=Unavailable)



REMUNERATION OF MANAGEMENT/ENGINEER

Total base salary plus bonuses and long-term incentives

\$K, 2018



PHARMACEUTICAL SECTOR INVESTMENTS AND R&D TAKE PRIORITY AND CAN BENEFIT FROM VARIOUS LUCRATIVE INCENTIVES..



Tax Deduction: Reduced tax rates for investor's income (50-100 %) until the total deduction reaches a certain percentage of capex. (55-70% of capex, in the case of project based incentives up to 200% of capex). For R&D investments, all R&D expenditures are deducted from tax base.

VAT Exemption: Investment machinery and equipment imported and/or locally provided within the scope of the incentive certificate will be VAT exempt.

Customs Duty Exemption: Investment machinery and equipment imported within the scope of the incentive certificate will be customs duty exempt.

Interest Rate Support: For investment loans, a certain portion of the interest share will be covered by government. (5-7 % points for TRY-denominated, 2% points for forex-denominated loans) (1.6M-1.8M TRY).

Land Allocation: Government land will be allocated for the investments, if no land is available in OIZs.

Income Tax Withholding Exemption will provide exemption from income tax withholding (only for Region 6).

Main Incentive Tools	General Incentives	Regional Incentives	Incentives for Strategic Investments	Project Based Incentives	R&D Incentives
Corporate Tax Reduction					
VAT/Custom Duty Exemption	•				
Social Security Premium Support		•	•	•	•
Income Tax Withholding Support*	•	•	•	•	
Interest Support**					
Land Allocation					
Qualified Personnel Support					
Infrastructure Support					
Energy Cost Support					
Purchasing Guarantee					



CRITICAL PHARMACEUTICAL PRODUCTION PROJECTS CAN BENEFIT FROM TAILOR-MADE PROJECT BASED INCENTIVES



- Cash grant up to 25% of machinery and equipment
- Corporate tax exemption up to 100 percent and investment support up to 200 percent; or a corporate tax exemption exclusively for the profits derived from the investment for the first 10 years following the commencement of operations.
- Income tax withholding support up to 10 years
- VAT exemption for imported or domestically purchased machinery and equipment for projects with an investment incentive certificate.
- Customs tax exemption for imported machinery and equipment for projects with an investment incentive certificate.
- If the investment is built upon a public immovable property, a right of easement or use on that immovable **property can be granted in favor of the investor** without consideration for 49 years. On condition that the investment is completed and the envisaged employment is provided for 5 years, ownership of the immovable property can be transferred to the investor without consideration upon request.
- Social security premium support for employer's share for up to 10 years
- · Compensation of up to 50 percent for energy consumption expenses related to the investment for up to 10 years
- Interest or dividend support for the loans extended in order to finance the fixed investment amount for up to 10 years.
- Salary support for qualified employees for up to five years; eligible support is capped at twenty times the gross monthly minimum wage. Qualified personnel is the key personnel with great knowledge and experience in the industry. These personnel would be critical in order for the investment to provide the promised outcome. We would expect 50 to 100 employees to be eligible for this support for a 1,600 employment, please note that this number can go up with negotiation.
- The Presidency may allow the **State to become a shareholder** owning up to 49% of the investment amount provided that the acquired shares will be sold back to the investors or be sold via public offer within 10 years.
- The Presidency may decide that all kinds of infrastructure investment can be carried out if the project required.
- Guarantee of purchase for the project-based investment product can be granted, the duration and amount of which will be determined by the Presidency.
- VAT refund for construction expenses
- The Presidency may grant **exemption for permission, assignment, license, registrations** and other restrictive provisions imposed by other laws for project-based investments.



INCENTIVES THROUGH INNOVATION LIFECYCLE



Technostartup Incentives:

Cash support up to 200K TRY

PRODUCT / PROJECT DEVELOPMENT

Call-based Tubitak programs:

Cash support up to 60-80% of the project budget via ARDEB High-Tech Platforms and/or SAYEM

COMMERCIALIZATION

Technoparks and R&D Centers: Income Tax Exemption Tax cuts up to 20-30% of the personnel cost Industrial Doctorate Program



Technology Focused Industrial Movement Program (HAMLE): Cash/credit support up to 5Million TRY for **SMEs**

GROWTH & COMPETITION

Patented sales: Income Tax & VAT Exemption

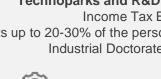


UNIVERSITY RESEARCH CENTERS

35 **ACCREDITED R&D CENTERS**











R&D ECOSYSTEM IN PHARMACEUTICALS

TURKEY HAS CREATED AN ECOSYSTEM OF R&D AND ENTREPRENEURSHIP...



MAM
GENETIC ENGINEERING
AND
BIOTECHNOLOGY
INSTITUTE



RELATED MINISTRIES & BODIES





UNIVERSITIES

ACCELERATOR

INCUBATION CENTERS









REPUBLIC OF TURKEY MINISTRY OF HEALTH TURKISH MEDICINES AND MEDICAL DEVICES AGENCY



Türkiye Sağlık Enstitüleri Başkanlığı

R&D ECOSYSTEM

















ARGEFAR

EGE ÜNIVERSITESI
ILAC GELISTIRME VE
FARMAKOKINETIK
ARASTIRMA - UYGULAMA











UNIVERSITY RESEARCH LABS

NATIONAL & INTERNATIONAL PROJECT CALLS

NGOs























IP PROTECTION IN TURKEY

...AND TURKEY'S REGULATORY ENVIRONMENT PROTECTS INTELLECTUCAL PROPERTY RIGHTS



Turkey has been accepting patent applications since 1996, in compliance with the WTO's Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.



The New Law on the Protection of Industrial Property Rights (2017)

- ✓ Simplifies proceedings, adopting tighter regulations for the protection & enforcement of IPR.
- ✓ Aligns the Turkish patent regime with its obligations as part of the European Patent Convention



As a candidate country, Turkey has significantly aligned its technical and IPR legislations with the European Union acquis communautaire



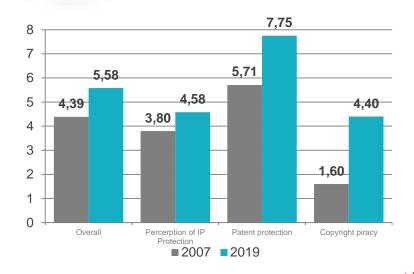
Specialized Courts on IPR

✓ There are 9 criminal and 13 givil specialized IP courts functioning in Ankara, Istanbul and Izmir



IPR PROTECTION IN TURKEY HAS SIGNIFICANTLY IMPROVED OVER THE PAST DECADE..

(SCORE: 10=BEST, 0=WORST)



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TURKEY INTRODUCED HEALTH TRANSFORMATION PROGRAM IN 2003 TO PROVIDE ACCESS FOR ALL CITIZENS – HEALTHCARE SPENDING DOUBLED TO REACH \$369 PER CAPITA IN 2019



Universal Coverage



Localization Program





Improving Infrastructure



Increasing # of Healthcare Professionals



Price Reference System

UNIVERSAL HEALTH INSURANCE INTRODUCED IN 2006 LOCALIZATION PROGRAM LAUNCHED IN 2016 NUMBER OF HOSPITALS INCREASED FROM 1,156 IN 2002 TO 1,534 IN 2018 (BED CAPACITY 165K TO 232K) NUMBER OF DOCTORS INCREASED FROM 92K IN 2002 TO 153 IN 2018 (FROM 1.4 TO 1.8 PER 1000) PRICE OF A TURKISH DRUG IS EQUIVALENT TO THE LOWEST OF THE PRICES IN: GREECE, PORTUGAL, SPAIN, ITALY AND FRANCE

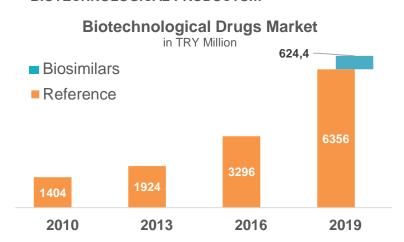
Source: Turkstat, Ministry of Health 23

TURKEY'S PHARMA INDUSTRY IS EVOLVING FROM HIGHLY COMPETITIVE AND LOW-VALUE GENERICS MARKET TO BIOPHARMACEUTICALS

KEY FACTS

- 11th Development Plan for 2019-2023 designates medicine and biomedical equipment as priority – biotechnological drugs are of strategic importance
- 17% of the total prescriptions in 2018 were biopharma USD 859 Million in value with biosimilars at USD 48 Million
- 259 biologics and 84 biosimilars in the Turkish market are mostly imported – 34% of the total import value in 2019
- EU biosimilars guidelines are implemented and substitution of biosimilars at the level of pharmacy is granted. Fast track registration is granted by the Ministry of Health around 6 months
- Price advantage for biosimilars: same price with biologics whereas that of generics have 60% of the originator drugs
- Research infrastructure incentivized for life sciences, biomedicine and genetics in order to cover end-to-end: target discovery, lead discovery, pre-clinical, clinical trials, filing and market launch.

R&D COMPETITIVE LANDSCAPE IS MOVING TOWARDS BIOTECHNOLOGICAL PRODUCTS...



.. AND TURKISH PHARMA INDUSTRY IS MAKING ITS ATTEMPT TO UTILIZE THIS POTENTIAL SINCE 2016



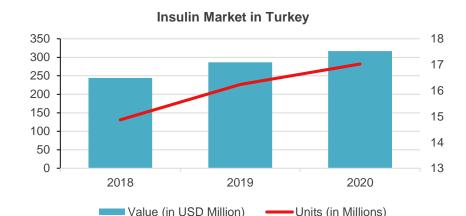
22 pharma companies working on 2 reference biotech drugs & 40 biosimilars to launch by 2024

TURKEY HAS OVER 8 MILLION DIABETES PATIENTS – 3RD HIGHEST NUMBER OF DIABETES PATIENTS IN EUROPE

KEY FACTS

- Turkey has over 8 million diabetes patients 1 out of 7 adults have diabetes
- 3rd highest number of diabetes patients and 2nd highest mortality rate in Europe
- Turkey spends more than TRY 25 Billion every year for the treatment of diabetes patients – 25% of the country's total health expenditure
- A high-growth market: 13% growth in the market on average to reach USD 316Million in 2020
- Novo Nordisk and Sanofi are active in the market with seven brands – Novorapid, Novomix, Levemir, Novoseven, Novonorm, Victoza and Lantus
- Koçak Farma has launched a biosimilar insulin glargine in 2015 – first locally manufactured insulin in Turkey
- Given the market size and growth, insulin production in Turkey would be an investment opportunity

A HIGH-GROWTH MARKET WITH 13% GROWTH RATE TO REACH USD 316 MILLION IN 2020...



.. WHERE NOVO NORDISK AND SANOFI ARE ACTIVE IN THE MARKET WITH SEVEN BRANDS

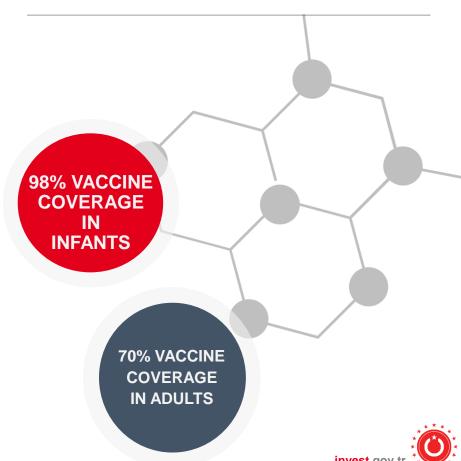


Source: IEIS, press excerpts 25

TURKEY IS TARGETING 100% LOCALIZATION OF VACCINES BY 2023

KEY FACTS

- 11th Development Plan for 2019-2023 designates medicine and biomedical equipment as priority – biotechnological drugs including vaccines are of strategic importance
- A growing market to reach USD 200 Million in 2018 98% vaccine coverage in infants, 70% in adults still room for growth
- Research infrastructure incentivized for life sciences, biomedicine and genetics. To cover end-to-end: target discovery, lead discovery, pre-clinical, clinical trials, filing and market launch.
- 13 vaccines that are included in the National Immunization Calendar are reimbursed 100%
- Localization gained speed since 2009 3 to 7 year purchase guarantee provided for local production:
 - Turkey's 1st locally produced vaccines: Pfizer in partnership with Birgi Mefar manufacturing pneumococcal vaccine since 2012
 - Antigen production for diphtheria-tetanus vaccine started in 2019
 - Conjugated pneumococcal vaccine fill-and-finish.
 - Rabies, chickenpox, and bcg vaccines of Koçak are in clinical studies.

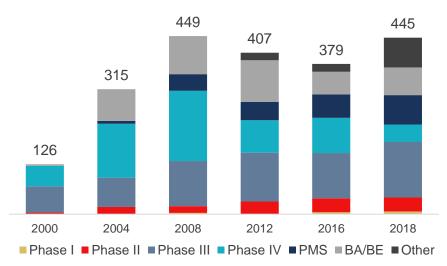


WITH A LARGE NUMBER OF TREATMENT-NAÏVE PATIENTS AND A PRACTICAL REGULATORY ENVIRONMENT, TURKEY IS AN IDEAL LOCATION FOR CLINICAL TRIALS

KEY FACTS

- A developing clinical research profile, supported by new regulations that are in accordance with international standards and European directives
- A large and diverse patient population of almost 82 million, the majority of whom are treatment-naïve
- Turkey offers a high number of sites with the capacity to conduct clinical research – in universities, private and state hospitals
- Highly motivated research teams trained in GCP, capable of producing high-quality, reliable data
- Comparatively low costs, relative to EU countries and the US

Number of Clinical Trials in Turkey



Source: Turkish Medicines and Medical Devices Agency
PMS: Postmarketing Studies: BA: Bioavailibility/BE: Bioequivalence



Source: Pharm-Olam

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POSSIBLE INVESTMENT REGIONS

SITE ASSESSMENT FOR SEVERAL INVESTMENT **REGIONS WITH DIFFERENT ADVANTAGES** CAN BE DONE FOR POTENTIAL INVESTORS



ISTANBUL & TEKIRDAG REGION

Existing pharma clusters; easy access to talent; export hub



BURSA REGION

Industrial clusters with international companies; export hub



IZMIR & MANISA REGION

Industrial clusters with international companies; export hub with easy access to logistics



SAMSUN REGION

Easy access to universities, hospitals and technoparks; lower costs in land and wages

ANKARA REGION

Easy access to universities, hospitals and technoparks; lower costs in land and wages



30 Source: Investment Office Study

TWO TYPES OF SPECIAL INVESTMENT ZONES ARE AVAILABLE FOR INVESTORS







ORGANIZED INDUSTRIAL ZONES:

- Access to high-quality land at subsidized rates in underdeveloped regions (land or building available)
- One-stop-shop where licenses and permits are issued by professional OIZ managements
- Electricity, water and waste treatment at lower rates
- Compliance with environmental regulations is easier where EIA is jointly conducted
- Cluster enhancing services like vocational training, logistics, business development services, technoparks etc.

FREE ZONES:

- Special sites that are considered as outside the customs area even though they are within the border
- Designed to promote export-oriented investment and production
- A very high level of incentives such as;
 - 100% exemption from corporate income tax, customs duties, VAT and special consumption taxes etc.
 - 100% exemption from employee income tax if at least 85% of the production is exported

TURKEY HOSTS MANY MULTINATIONAL MEDTECH PLAYERS FOR MANUFACTURING, MANAGEMENT, AND INNOVATION PURPOSES



TURKEY'S PHARMA & BIOTECH INDUSTRIES HAVE EXPERIENCED A GREAT NUMBER OF FDI **PROJECTS IN THE LAST 15 YEARS**



COUPLED WITH AN INTENSIVE M&A INVESTMENT FLOWS TARGETING ATTRACTIVE **DOMESTIC COMPANIES SINCE 2010**

+40 **GREENFIELD** FDI PROJECTS



CREATED ~3K JOBS IN THE **INDUSTRY**

MAJOR PLAYERS INVESTED IN THIS PERIOD INCLUDE:















TOP 3 M&A DEALS IN PHARMA SINCE 2010 BY:











\$ 120 MILLION in 2015





INVEST IN TURKIYE



invest.gov.tr

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