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NeuroRG®

Deep Learning Based High-Throughput Screening Platform

DR.NOAH BIOTECH

자체 신약 연구 개발

닥터노아바이오텍, 뇌졸중 복합신약 국내 임상 1상 완료

남대열 기자 | 승인 2023.07.24 09:00

연내 FDA와 Pre-IND 미팅 진행 예정...글로벌 임상 2상 박차

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닥터노아바이오텍(대표 이지현)은 뇌졸중 회복 치료제로 개발 중인 복합신약 'NDC-002(개발코드명)'의 임상 1상을 성공적으로 완료했으며, 연내 미국 식품의약국(FDA)과 글로벌 임상 2상 진입을 위한 임상시험 사전미팅(Pre-IND meeting)을 진행할 예정이라고 24일 밝혔다.

닥터노아바이오텍, ALS 복합신약 미국 FDA 희귀약 지정

정흥준 기자 2023-10-12 12:03:27 가 가

'NDC-011' 비임상 결과 인정받아...미 신경치료학회 저널에 게재

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[데일리팜=정흥준 기자] 닥터노아바이오텍 주식회사(대표이사 이지현)는 근위축성측삭경화증(Amyotrophic Lateral Sclerosis, ALS, 루게릭병) 치료제로 개발중인 복합신약 NDC-011이 지난 9월 28일 미국 식품의약국(FDA)으로부터 희귀의약품(Orphan Drug Designation, ODD) 지정을 받았다고 밝혔다.

닥터노아바이오텍 "뒤센근이영양증 치료제 후보, FDA 희귀약 지정"

남대열 기자 | 입력 2024.05.14 05:03 | 댓글 0 가 가

NDC-026, FDA서 희귀소아의약품 및 희귀의약품 지정

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닥터노아바이오텍(대표 이지현)은 뒤센근이영양증(DMD) 치료제로 개발 중인 복합신약 NDC-026이 지난 4월 미국 식품의약국(FDA)으로부터 희귀소아의약품(Rare Pediatric Disease Designation·RPDD) 및 희귀의약품(Orphan Drug Designation·ODD)으로 지정을 받았다고 13일 밝혔다.

공동 연구 개발

닥터노아바이오텍, 아모레퍼시픽과 항노화 소재 연구

정흥준 기자 2021-12-16 19:33:47 가 가

인공지능플랫폼 활용한 공동연구계약 체결

DR.NOAH BIOTECH AMOREPACIFIC

[데일리팜=정흥준 기자] 차세대 인공지능(AI) 신약개발 기업 닥터노아바이오텍(대표 이지현)은 아모레퍼시픽과 함께 ARK 인공지능플랫폼을 활용한 신규 항노화 소재 발굴을 위한 공동연구계약을 체결했다고 15일 밝혔다.

닥터노아바이오텍, 대웅제약과 AI 기반 신약개발 협업

김정일 기자 | 입력 2023.11.03 09:09 | 댓글 0

제약바이오협 통해 딥러닝 기반 약물 스크리닝 플랫폼 활용연구 공모

[의학신문·일간보사=김정일 기자] 닥터노아바이오텍(대표 이지현)은 한국제약바이오협회를 통해 진행된 '딥러닝 기반 약물 스크리닝 플랫폼 활용연구 공모전'의 최종 협업 기업으로 대웅제약이 선정됐다고 3일 밝혔다.

NeuroRG® Technology - Overview

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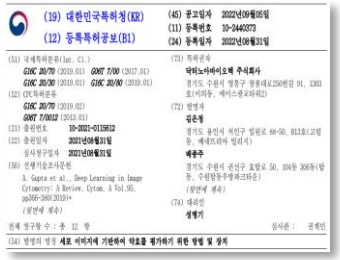
Overview

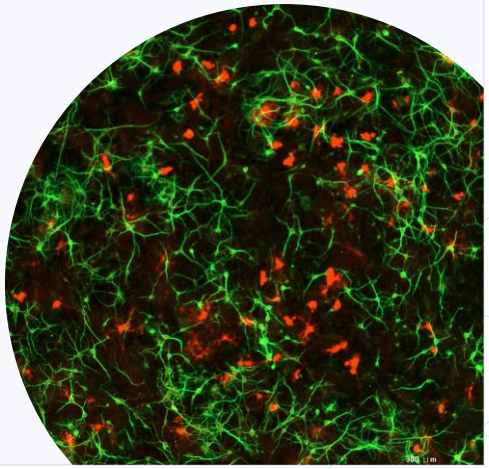
- Efficacy evaluation with specific modules for each disease
- Quick evaluation with automated facilities in DR.NOAH BIOTECH's research center
- Possible to complete evaluation of 10,000 drugs within 2 months (with HTS facility)
- Possible to evaluate with various cells (primary cell, cell line, IPSCs)and co-culture cells
- Deep-learning based screening by visualization

  - Cell's morphological change
  - Expression of target protein (e.g., GLP-1, PD-L1)
  - Specific biomarker (e.g., aging, differentiation, EMT, cell interaction, cell membrane)

- Intellectual property (Patent registered in South Korea)



Patent (10-2440373KR)



NeuroRG® Technology – Research flow

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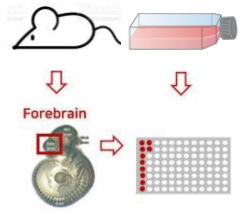
Research flow

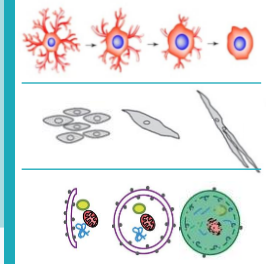
Step 1 & 2
Modulization
(Preparation & AI Training)

Preparation



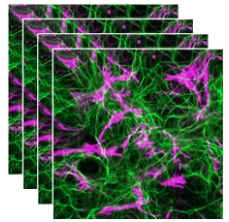
- Primary cell culture
- Cell line culture
- iPSC
- Etc.

Condition setup



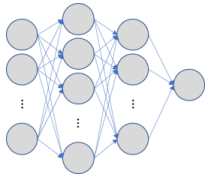
- Neuroinflammation
- Myogenesis
- Autophagy
- Customized set-up

Mass cell image generation



- 1 year = 10 Million images (100 billion cells)
- 1 day = 200GB (30 movies)

AI Training



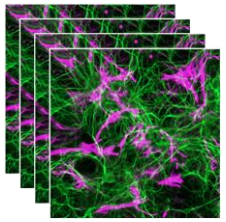
Step 3

Evaluation

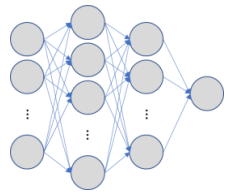
Drug Library

- Client's library
- DR.NOAH's library

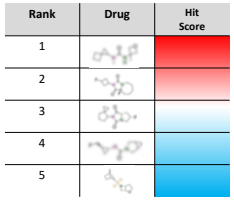
Treatment



Efficacy prediction



Hit ranking



- Including identification of Hit compounds with bio-assay

NeuroRG® Technology – Research flow

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Step 1 : Modulization (preparation)

1.Preparation

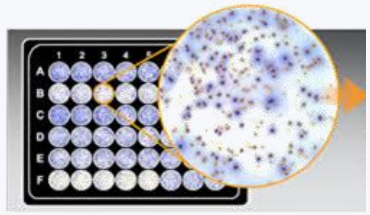
Primary cell	iPSC
Co-cultured cell	Customized cell
Cell line	⋮

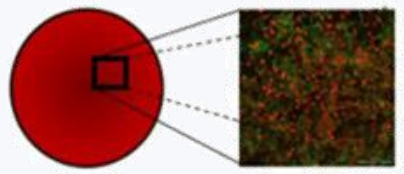
2. Condition setup

Chemical perturbation	**Neuroinflammation**
Genetic perturbation	**Oxidative stress**
Chemical Induction	**Excitotoxicity**
Customized induction	**Customized modules**

3. Mass cell image generation

Automated Imaging system





Capability: 1 year = 10 Million images (100 billion cells)
1 day = 200GB (30 movies/day)

NeuroRG® Technology – Research flow

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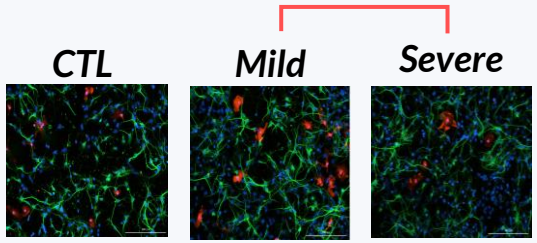
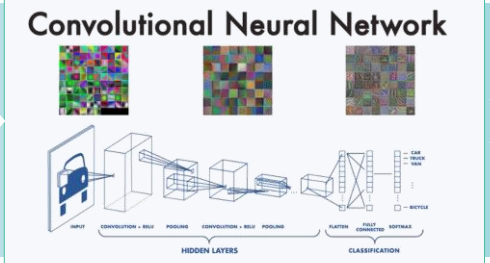
Step 2 : Modulization (AI Training)

High Accuracy 94.4%

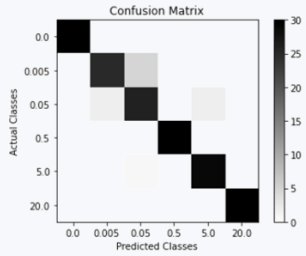
Pathological conditions (usually, we generate 4 ~ 5 stages)



Deep Learning

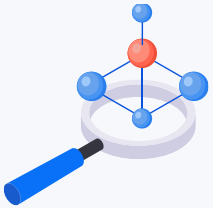


Classification For pathological status

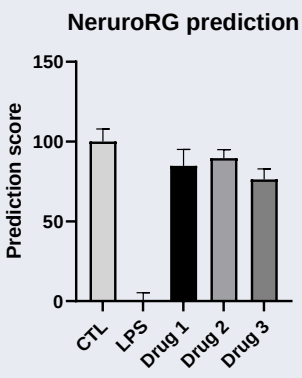


Accuracy: 94.4%

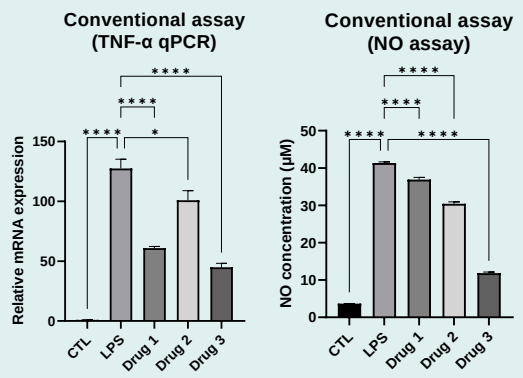
- **NeuroRG**
  predict anti-inflammatory effect more accurately
- **Conventional assay**
  change anti-inflammatory effect depend on assay method



NeuroRG®



Conventional assay



NeuroRG® Technology – Research flow

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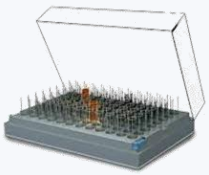
Step 3 : Evaluation

Reduced Time

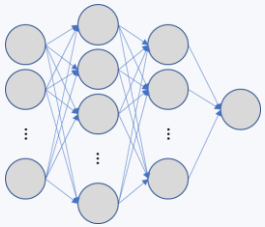
Treatment



Drug library

HTS

Efficacy prediction



Hit candidate

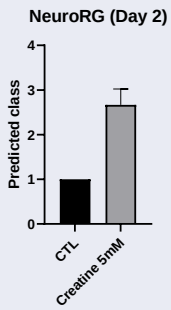
Rank	Drug	Inflammation Class
1		1
2		1
3		3
4		3
5		5

- **Time to screen 1 thousand compounds**
  (1 researcher & 3 doses triplicate/each drug)

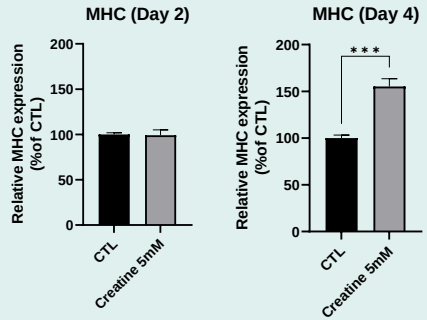
NeuroRG®	Conventional assay (MHC assay)
5 weeks	28 weeks

- **Detection time for differentiation**

NeuroRG®



Conventional assay



NeuroRG ®

Deep Learning Based High-Throughput Screening Platform

Thnak you!

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