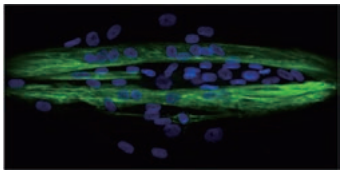
A new HTS platform (96-well plate) for early muscle drug discovery

Using the FDSS®/µCELL EFS from Hamamatsu Photonics, a response to electrical field stimulation of MyoScreen™ human donors was observed by measuring intracellular calcium transients in real-time. A novel stimulator of myofiber regeneration/repair, recently identified by CYTOO in an “in-house” drug screen was further characterized on the FDSS with MyoScreen™ system. We found that the hit compound significantly increased levels of myoplasmic calcium compared to non-treated controls upon electrical stimulation. Overall, the Hamamatsu FDSS/µCELL electrical stimulation and calcium imaging platform combined with the MyoScreen™ in vitro myotube model provides a relevant screening system for modulators of calcium levels in the context of skeletal muscle exercise and performance.

CYTOO
PHYSIOLOGICAL ASSAYS FOR HCS

https://cytoo.com/



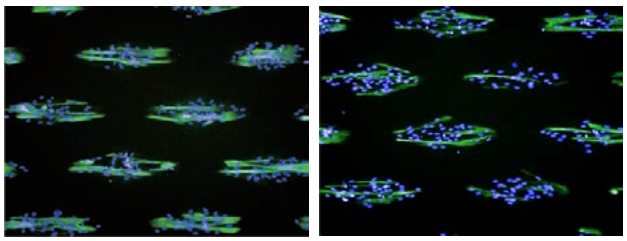
MyoScreen™

Calcium flux of MyoScreen™ using the FDSS/µCELL 96 ch EFS

MyoScreen™ responsiveness to electrical stimulation

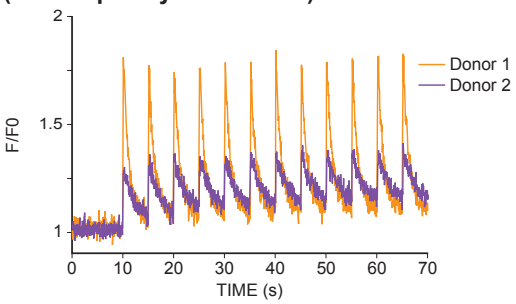
Captured images of MyoScreen™

* Microscopy images offered by CYTOO.

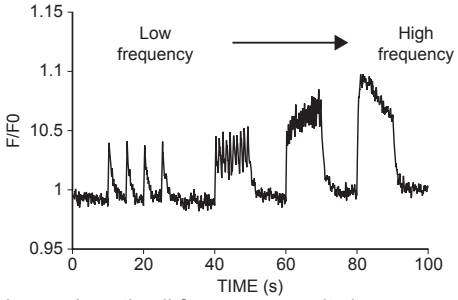


Donor 1 (female) Donor 2 (female)

Calcium flux recording with EFS (low frequency stimulation)

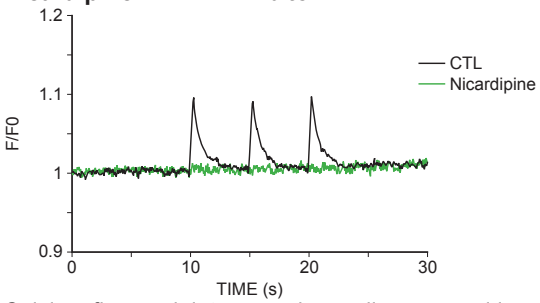


From twitch to tetanus states



Increasing stimuli frequency results in wave summation and finally complete tetanus reflecting in vivo phenomenon.

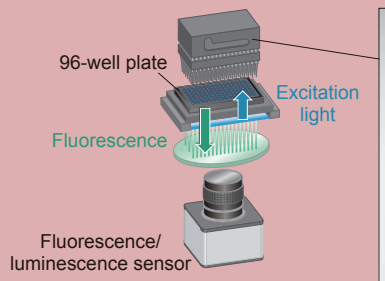
Screening of calcium flux modulators Nicardipine: DHPR inhibitor



Calcium flux modulators can be easily assessed in a high throughput way.

FDSS/μCELL and EFS option 96-channel electrode array for EFS (electric field stimulation)

▲FDSS/μCELL



▲96-electrode array (patent pending)

- Fluorescence / Luminescence measurements while electric field stimulation.
- Variable EFS frequency.
- Variable EFS voltage.

- Stimulate all 96 wells simultaneously
- Cylindrical electrodes
- Change stimulation voltages by column (Patent pending)

* The FDSS/μCELL EFS system should not be used for optically detecting/monitoring change in transmembrane potential of the cells.
The FDSS/μCELL EFS system should not be used on any cell or cells in which the user or anyone else has expressed target ion channels.

HAMAMATSU PHOTONICS K.K. **www.hamamatsu.com**

HAMAMATSU PHOTONICS K.K., Systems Division
812 Joko-cho, Higashi-ku, Hamamatsu City, 431-3196, Japan, Telephone: (81)53-431-0124, Fax: (81)53-433-8031, E-mail: export@sys.hpk.co.jp
U.S.A.: Hamamatsu Corporation: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218 E-mail: usa@hamamatsu.com
Germany: Hamamatsu Photonics Deutschland GmbH.: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de
France: Hamamatsu Photonics France S.A.R.L.: 19, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: (33)1 69 53 71 00, Fax: (33)1 69 53 71 10 E-mail: infos@hamamatsu.fr
United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court,10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk
North Europe: Hamamatsu Photonics Norden AB: Torshamnsgatan 35 16440 Kista, Sweden, Telephone: (46)8-509 031 00, Fax: (46)8-509 031 01 E-mail: info@hamamatsu.se
Italy: Hamamatsu Photonics Italia S.r.l.: Strada della Moia, 1 int. 6, 20020 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it
China: Hamamatsu Photonics (China) Co., Ltd.: 1201 Tower B, Jiaming Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R.China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn
Taiwan: Hamamatsu Photonics Taiwan Co., Ltd.: 8F-3, No.158, Section2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw

Cat.No.SBIS0128E01
SEP/2019 IP
Created in Japan (PDF)